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# Feed

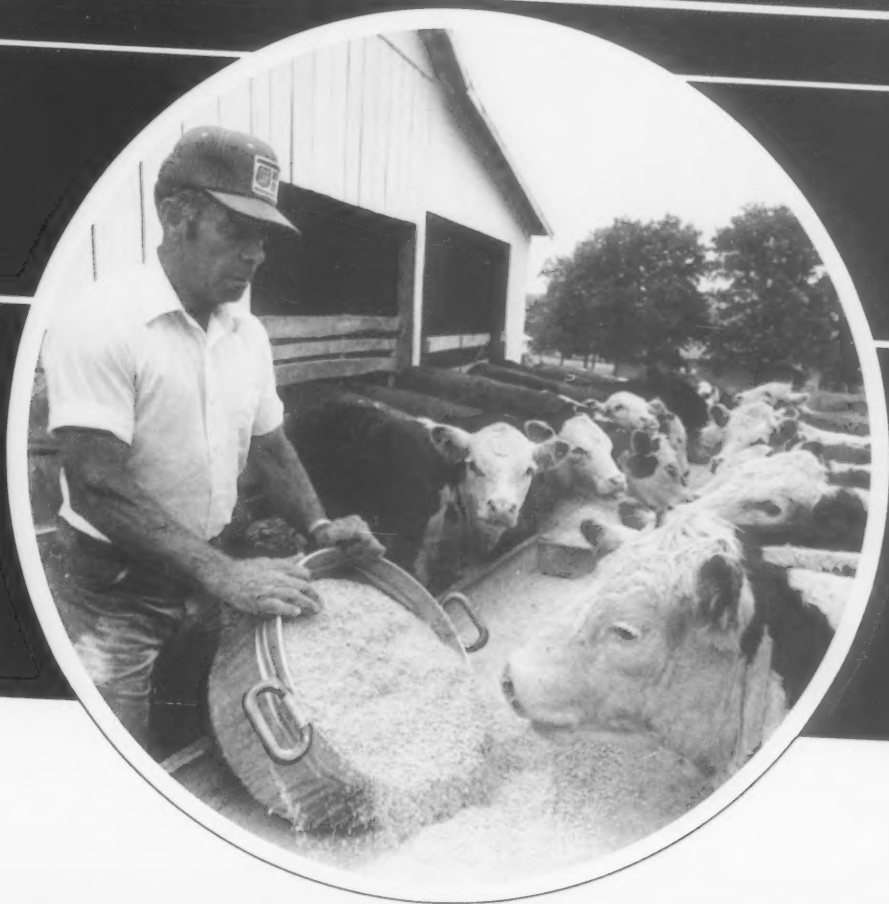
## Outlook and Situation Report

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Corn feeding lowest since 1975, page 2.



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## Summary

**The U.S. corn crop** is projected at 7.8 billion bushels in 1984, nearly double 1983. A major concern at this time is the delayed plantings because of excessive moisture, not only for corn but barley and oats as well. The projected corn crop and carryover stocks of 0.5 billion bushels places the expected supply for 1984/85 at 8.3 billion bushels, about a billion larger than the current season and about the same as 1980/81. Use is expected to rise 6 percent to about 7.2 billion bushels, leaving carryover stocks in 1985 slightly over 1.1 billion. This implies somewhat lower farm prices than during the current year, but supply would still be tight enough to yield a season average price of \$2.65-\$3.20 a bushel—10 to 65 cents above the National average loan rate, with the most likely price below the midpoint.

The grain-consuming animal units (GCAU's) on farms for 1984/85 are expected to total 75.6 million units, down 3.6 percent from the 78.3 million on hand this year. The bulk of the decrease will result from fewer hogs raised, with smaller reduction coming from the dairy industry and cattle feeding. With expected lower prices, feed and residual use of grain is forecast to rise slightly in 1984/85.

**Food, seed, and industrial (FSI) use of corn** will account for about 14 percent of total use in 1984/85, compared with 8 percent a decade ago. Expanding markets for high fructose-corn syrup (HFCS) from the beverage industry and ethanol from the gasoline industry underlie this growth in corn processing. Pending legislation on gasoline taxation could give fuel alcohol sales a further boost.

World coarse grain production in 1984/85 is expected to rebound from the relatively low level of 1983/84. More usual growing conditions are expected to increase U.S. production, Canadian and European Community (EC-10) barley production, and South African corn production. The United States is expected to export about 58 million metric tons of coarse grain in 1984/85, up about 2 million—including more corn but less sorghum and barley.

Feed and residual use of feed grains for January-March totaled 29.9 million metric tons, down 27 percent from year-earlier use of 41.1 million tons—the lowest feed and residual use for a January-March quarter since 1975. Corn amounted to 25 million tons, 84 percent of the total. The balance included 2.7 million tons of sorghum, 1.5 million tons of oats, and almost 900,000 tons of barley. FSI use of 5.8 million tons and exports of 15.5 million brought total use for the quarter up to 51.2 million tons. Both use categories exceeded year-earlier use by 5 percent.

**April 1 stocks of feed grains** totaled 104.4 million tons, down 81.3 million tons from a year earlier, when stocks were a record for April. Unless prices rise substantially, about 12.5 million tons on hand this April are unavailable to the market—including 6.6 million tons of corn, sorghum, and barley in stocks owned by the Commodity Credit Corporation (CCC) and 5.9 million tons of sorghum and barley in the farmer-owned reserve (FOR).

April 1 stocks of corn, less than 3.3 billion bushels, were the lowest for that date since 1976. The reduction from last year's record April 1 stocks reflects corn distribution under the payment-in-kind (PIK) program and the redemption and use of FOR grain in response to higher prices this year.

**Corn use during April-September** is expected to total 2.7 million bushels, leaving carryover stocks of slightly over 500 million—the lowest since 1976. Free stocks, including reserve stocks, will be less than 345 million bushels. FSI use and exports are expected to total about 1.4 million bushels for April-September, 2 percent above a year earlier. Feed and residual use will most likely be about 1.3 billion bushels, about 24 percent under last year.

**Corn farm prices during October-March** averaged \$3.16 a bushel, 36 percent above the year-earlier average of \$2.33. March price strength continued into April; tight supplies are expected to result in some additional price strength into early summer, followed by a decline during the July-September quarter as new-crop grains move into market channels in increasing quantities. Second-half prices are expected to pull the season's average price up to \$3.25 a bushel, 21 percent above the 1982/83 average.

Carryover stocks of hay (May 1) were 20.6 million tons—the lowest since 1977, caused by a drought-reduced crop and heavier hay feeding. The farm prices for hay averaged \$77.86 a ton in 1983/84, up over \$9.00 from a year earlier. Farmers reported intentions to increase the area harvested for hay by 2 million acres.

## FEED GRAIN SUPPLY AND USE

The total supply of feed grains available for the first calendar quarter of 1984 amounted to 155.7 million metric tons, down 27 percent from a year earlier. The supply consisted almost entirely of the January 1 stocks on hand plus a small amount of imports during the quarter. Corn composed 80 percent of the 1984 supply, compared with 85 percent last year.

Disappearance of feed grains during January-March came to 51.2 million tons, down 17 percent from the year-earlier use of 61.4 million. Food, seed, and industrial (FSI) use was 5.8 million tons, up 5 percent. Exports amounted to 15.5 million tons, also up almost 5 percent from last year's January-March shipments. Exports of corn, barley, and sorghum were all higher in 1984, but the quantity of oats moved out of the country was unchanged.

Subtracting the 21.3 million tons exported and used for FSI from total disappearance left a balance of 29.9 million tons for the feed and residual category of use, down 27 percent (11.2 million tons) from a year earlier. On the basis of livestock and poultry numbers and other factors, feed use of feed grains in January-March 1984 was expected to be near a year earlier.

Livestock and poultry numbers, weighted for their relative daily rate of grain consumption, were down about 1 percent from a year earlier. However, temperatures during January and February in the Corn Belt, Lake States, and Northern Plains averaged about 10 percent below a year earlier; these lower temperatures would tend to increase feed use sufficiently to offset the reduction in livestock and poultry numbers. Finally, there was an additional feeding day in February because of leap year. This extra day is equivalent to about a 1.1-percent increase in feed use for the quarter.

The large decline in the feed and residual disappearance relative to last year may be the result of a change in the residual component. Use in January-March 1983 appeared large relative to livestock and poultry numbers, implying a large positive residual disappearance. The disappearance in January-March 1984 indicates that the residual factor was probably negative this year.

An estimated 1.7 million metric tons of wheat were fed during January-March 1984, compared with 1.4 million tons fed a year earlier. Thus, substitution of wheat for corn and other feed grains cannot be cited as an explanation for the 11.2 million-ton drop in feed and residual use of feed grains in 1984.

Disappearance during January-March 1984 left feed grain stocks of 104.4 million metric tons on April 1, compared with the record 185.7 million a year earlier. April 1984 stocks were the lowest since 1977, when they were only 99.2 million tons. Moreover, about 12.5 million tons of stocks on hand this April are unavailable to the market unless prices rise substantially—6.6 million tons of corn, sorghum, and barley in stocks owned by the Commodity Credit Corporation (CCC) and 5.9 million tons of sorghum and barley in the farmer-owned reserve (FOR). There are still some corn and oats in the FOR, but these reserves have been triggered so they are available to the market at current price levels.

## Corn

### ***January-March Disappearance Drops Sharply; April 1 Stocks Lowest Since 1976***

Disappearance of corn during January-March 1984 amounted to nearly 1.7 billion bushels, about 18 percent less than a year earlier. Almost 510 million bushels were exported in 1984, up 2 million bushels from last January-March. FSI use amounted to 183.1 million bushels, almost 14 million more than processed a year earlier. Deducting the exports and FSI use from total disappearance left 984 million bushels for feed and residual use—28 percent less than a year earlier and the smallest feed and residual disappearance for a January-March quarter since 1975. However, the number of live-stock and poultry on hand this year was about 14 percent greater than in 1975, with 91 days in January-March instead of the 90 days in 1975.

The sizable drop in 1984's feed and residual disappearance from last year must reflect a change in residual disappearance. An index of the livestock and poultry feed grain-consuming population is down about 1 percent from a year earlier. However, the impact of this on feed use is offset by colder average temperatures during January in the Corn Belt, Lake States, and Northern Plains regions. The other factor—one more feeding day in the quarter—would tend to increase feed use about 1 percent. The feed and residual disappearance a year earlier contained a large positive residual component. It appears that in 1984 the residual component was also larger than usual but negative.

The disappearance of corn from supply during January-March left less than 3.3 billion bushels on hand April 1, almost 3 billion less than a year earlier and the smallest April 1 stocks since 1976.

A little over 1.9 billion bushels of corn were left in on-farm stocks this April, and off-farm stocks amounted to 1.3 billion. About 90 percent of the on-farm stocks were in the Corn Belt, Lake States, and Northern Plains regions. These three regions also contained about 85 percent of the off-farm stocks, which were about 640 million bushels below a year earlier. Some of this reduction reflects lower CCC stocks resulting from payment-in-kind (PIK) distribution from CCC stocks this winter.

About 175 million bushels of April 1 corn stocks are expected to be left in CCC ownership after all PIK entitlement payments have been made. However, the National-average price received by farmers for corn would have to rise to about \$3.87 a bushel before the CCC can sell any of this corn. Excluding these CCC stocks leaves less than 3.1 billion available to meet market needs during April-September.

Payment of PIK entitlements from the FOR totaled 513.9 million bushels by April 1, leaving slightly over 304 million bushels of outstanding PIK claims on the FOR. There were about 886 million bushels of corn in the FOR on April 1—about 580 million more than the remaining PIK claims.

### ***FSI Use and Exports on Track With Forecasts***

FSI use for the first half of the 1983/84 crop year (October-March) amounted to 403 million bushels, 8 per-

cent above a year earlier. The use of corn in manufacturing high fructose corn syrup (HFCS) and ethanol (as a gasoline additive) has been the major reason for the increase. The rise in corn used for food and industrial purposes was up about 14 percent, but this has been partly offset by less corn used in producing beverage alcohols and less seed used because of weather-delayed plantings.

Corn use in HFCS and ethanol production during the next 5 months will increase seasonally from the rate of use in the first half of 1983/84; corn use may show growth over a year earlier similar to that observed during October-March. Corn used for production of beverage alcohol, during the second half of 1983/84, is expected to be close to the year-earlier use and to exceed the amount used in October-March. Seed use during April-September most likely will be up 6 million bushels from last year because of increased area planted and because so little area was planted prior to April 1 this year.

FSI use for April-September is currently forecast at 547 million bushels. However, there is a high probability that the use could be as much as 4 percent higher if the increase over year-earlier use evident during October-March continues during April-September.

A little over 1 billion bushels of corn were exported during the October-March period, 54.7 percent of the 1983/84 forecast of 1.9 billion. Last year, 54.6 percent of the 1982/83 exports were shipped in the first half. Consequently, this year's exports are on track with the forecast, which would put April-September exports at 861 million bushels, compared with 849 million a year earlier. In addition to cumulative exports by April 1, outstanding sales amounted to about 428 million bushels, or almost half of projected exports, for the April-September period.

#### **Sharp Drop Required in April-September Feed and Residual Use**

If the projections for FSI and exports are realized, these two categories of use would require a little over 1.4 billion bushels of the 1983/84 April 1 stocks, leaving less than 1.9 billion for feed and residual use and carryover stocks. Feed and residual use during April-September last year exceeded 1.7 billion bushels. Feed and residual use this year will have to be much lower if adequate pipeline stocks are to be maintained.

Carryover stocks on October 1, 1984, are estimated at 520 million bushels of which 175 million would be CCC stocks and 345 million would be free stocks (including the reserve). If carryover stocks do not drop below 520 million bushels, feed and residual use of corn would have to be limited to about 1.3 billion bushels during April-September, almost 24 percent less than a year earlier. This would put feed and residual use for April-May at about 625 million bushels, which is consistent with livestock and poultry numbers and is feasible because of the large positive residual in use for this quarter in 1983 (see special article "Analyzing Feed and Residual Disappearance of Corn"). However, the feed and residual use for June-September could be only about 700 million bushels, compared with 909 million a year earlier, which probably included only a small positive residual.

Even though hog numbers are expected to be down 12-13 percent this summer, total livestock and poultry numbers will most likely be down only about 3 percent. Price relationships will have to stimulate a substantial substitution of other grains for corn in livestock and poultry feeding. New-crop wheat will become available in many areas in June, but only a small amount of new crop barley or oats will become available before August. New-crop sorghum will be harvested in the Rio Grande Valley and Coastal Bend areas of Texas in July. However, this will be too far south to replace very much corn in livestock feeding without considerable added transportation charges.

The tight corn supply is expected to result in some additional price strength in the cash market this spring, followed by weakness from mid-July on as more new-crop grain enters market channels. Prices during April-September are expected to pull the season average farm price up to \$3.25 a bushel. The farm price averaged about \$3.16 for the first 6 months.

In recent years, more than a billion bushels of corn have been harvested prior to October 1. Plantings have been delayed this spring, and the early harvest may not be as large as in recent years. New-crop corn may not exert much downward pressure on cash corn prices before late September. However, if growing conditions are below average this summer, corn prices could rise sharply.

#### **Farmers Enroll 54 Percent Of Base in 1984 Program**

Farmers representing 54 percent of the U.S. corn base acreage enrolled in the 10-percent acreage reduction program (ARP). Apparently, few farmers took advantage of the liberal provisions for receiving a base by retroactively certifying acreage planted during the past 2 years. Therefore, the total corn base for 1984 is not significantly different from the 1982 base.

The corn and sorghum bases were combined in 1983. Thus, it is difficult to compare 1983 and 1984. However, a meaningful comparison can be made between 1982 and 1984.

The difference between the number of farms with a base in 1982 and 1984 is less than 1,000, a negligible difference. A total of 1-1/3 million farms have a corn base in 1984. Similarly, the difference in the total base for the 2 years is insignificant—81.3 million acres in 1982 and 81.4 million in 1984. The Corn Belt, Lake States, Northern Plains, and 7 other selected States—a total of 19 States—account for 93 percent of the base in both years. The remaining 7 percent of the base is scattered over the other 29 contiguous States.

Similarities between 1982 and 1984 end when the comparison moves to participation and the division of base between complying and noncomplying farms. Although enrollment in 1982 was 76 percent, final compliance was 29 percent of the U.S. base, compared with the enrollment of 54 percent of the base in 1984. In 1984, compliance is expected to be close to enrollment. In 1982, a producer could drop out of the program without penalty. However, enrolled farmers must pay a penalty this year if they do not comply.



**Corn: Number of farms, base, and compliance, 1982 and 1984**

Region	Number of farms 1982		Base 1984	Compliance 1982	Enrolled 1984	Non- compliance 1982	Non- enrolled 1984
	<i>Thousand</i>			<i>Million acres</i>			
Corn Belt	531	548	38,627	38,742	10,053	22,451	28,574
Lake States	220	209	13,884	13,645	4,217	7,757	9,667
N. Plains	138	140	14,004	14,803	6,505	9,755	7,499
Other <sup>1</sup>	272	270	9,072	8,515	1,888	2,714	7,184
Total	1,161	1,165	75,587	75,705	22,663	42,677	52,924
All other	172	169	5,668	5,663	946	1,211	4,722
U.S. total	1,333	1,334	81,255	81,368	23,609	43,888	57,646

<sup>1</sup>Includes Colorado, Georgia, Kentucky, North Carolina, Pennsylvania, Texas, and Virginia.

**1982 planting situation and 1984 potential**

Region	On compliance		1982 planted Noncompliance		Total planted	On compliance farms	1984 potential Non- compliance base	Total
	Potential	Actual	Potential	Actual				
	<i>Million acres</i>							
Corn Belt	9,048	8,063	28,574	30,187	38,250	20,206	16,291	36,497
Lake States	3,795	3,397	9,667	11,353	14,750	6,981	5,888	12,869
N. PLains	5,855	5,358	7,499	7,632	12,990	8,780	5,047	13,827
Other <sup>1</sup>	1,699	1,372	7,184	7,888	9,260	2,443	6,001	8,444
Total	20,397	18,190	52,924	56,960	75,150	38,410	33,227	71,637
All other	851	624	4,722	6,005	6,629	1,090	4,254	5,344
U.S. total	21,248	18,814	57,646	62,965	81,779	39,500	37,481	76,981
		-2,434		+5,319				

<sup>1</sup>Includes Colorado, Georgia, Kentucky, North Carolina, Pennsylvania, Texas, and Virginia.

**Planting Intentions  
Consistent With Enrollment**

An indication of 1984 plantings can be derived by comparing the planting potential on the base acreage this year with actual plantings in 1982. Participation in both years required that planted acreage not exceed 90 percent of the base. Therefore, maximum plantings on participating farms would equal 90 percent of the base. This maximum was 21.2 million acres in 1982. However, participants planted only 18.8 million acres, underplanting by 2.4 million. In contrast, the base on noncomplying farms amounted to 57.6 million acres in 1982, but plantings by all nonparticipants totaled 63 million—an excess of 5.3 million acres. This excess represents plantings on farms without certified base and plantings beyond the base on noncomplying farms.

If all farms enrolled in 1984 comply, maximum plantings on complying farms would be 39.5 million acres—90 percent of the enrolled base. If the noncomplying farms limit plantings to their base, those farms would plant 37.5 million acres for a total of about 77 million acres. However, capacity on farms outside the base and planting beyond the base on noncomplying farms could add between 4 and 5 million acres. Therefore, plantings could be close to the 81.8 million acres that farmers reported they intended to plant this year.

Farmers in the Corn Belt, Lake States, and Northern Plains regions reported intentions to plant 42.6 million acres to soybeans this year. This is 1.3 million acres less

than planted to soybeans in the same regions in 1982. Therefore, on noncomplying farms and farms outside the base, a shift in some acreage to corn from soybeans may occur this year. The cash soybean/corn price ratio in central Illinois averaged 2.3 during March, an incentive for noncompliers to shift toward corn.

**Adequate Supply in 1984/85  
If Growing Conditions Are Average**

Assuming that farmers plant 81-82 million acres to corn this year and the ratio of harvested to planted is about normal, the area harvested could be about 72 million acres. However, delayed plantings this year may result in an average yield slightly under trend. This would result in a crop of approximately 7.8 billion bushels. Adding this to an estimated carryover of 0.5 billion bushels results in a total supply of 8.3 billion for 1984/85.

Disappearance in 1984/85 could total about 7.2 billion bushels—comprised of a little over 4.1 billion bushels feed and residual use, a little over 1.0 billion bushels FSI use, and exports just above 2 billion bushels. This would leave a carryover stock of 1.1 billion bushels on hand October 1, 1985. A carryover of this magnitude would represent 15-16 percent of disappearance—below average for the last 16 years. This would not represent a burdensome carryover, and the farm price of corn would be expected to average 10-65 cents a bushel above the \$2.55 loan rate for the 1984/85 crop year. Prices are most likely to be below the midpoint of the forecast range of

\$2.65-\$3.20. The upper end of the range represents prices reflecting a crop decline because of adverse weather this summer, given the low ending stocks of 1983/84.

## **Sorghum**

Sorghum stocks on April 1, 1984, were estimated at 464.5 million bushels, with off-farm stocks of 378 million (81 percent of the total). Over 90 percent of the off-farm stocks were in elevators and warehouses in Kansas, Nebraska, and Texas. On-farm stocks totaled only 86.5 million bushels, with about 88 percent of the total on farms in Kansas, Missouri, Nebraska, South Dakota, and Texas.

Subtracting April 1 stocks from January 1 stocks of 652.1 million bushels shows a total disappearance during January-March of 187.6 million bushels. January-March was a strong quarter for exports with 77.8 million bushels shipped—up about 25 percent from both the October-December quarter and a year earlier.

FSI use took 2.6 million bushels leaving feed and residual use at 107.2 million—18.6 million bushels less than in 1983. Last year, the price received by farmers for sorghum during January-March averaged \$2.46 a bushel—97 percent of the \$2.54 average price of corn at the farm. This year, sorghum averaged \$2.71 a bushel at the farm, or only 86 percent of the \$3.16 received for corn.

Probably the greatest factor in the weak winter price of sorghum relative to corn has been competition from wheat. Wheat prices have been low relative to both sorghum and corn in many areas, particularly in the major sorghum-producing areas in the Central and Southern Plains.

### **Sorghum Use Revised Downward**

Last fall and winter, it appeared that the tight supply of corn would result in increased use of sorghum to replace corn in livestock and poultry rations. However, wheat apparently filled this role; instead of a stronger sorghum demand, feed use of sorghum declined and sorghum prices weakened relative to corn. With the harvest of the 1984/85 wheat crop now underway and the sorghum harvest in southern Texas to start shortly, there seems little likelihood that sorghum demand for feeding will be strong enough to trigger the sorghum reserves. Without triggering the reserves, it will be impossible to feed the quantity of sorghum that was expected earlier. Consequently, feed use is forecast at 400 million bushels in 1983/84, 50 million below earlier expectations.

### **Free Stocks To Limit Use**

It is expected that there will be at least 150 million bushels of sorghum left in the FOR and 75 bushels in CCC stocks after all PIK entitlements have been paid. Therefore, out of the 465 million bushels of sorghum in April 1 stocks, 225 million are most likely isolated from the market, leaving 240 million as free stocks.

Use for the April-September period is estimated at 217 million bushels, which would put total disappearance for the 1983/84 crop year at 635 million bushels. Exports

are projected at 85 million bushels and FSI use most likely will take 5 million bushels, both equal to year-earlier use. This will leave feed and residual use for April-May at 127 million bushels, slightly less than last year's 131 million; feed use for the year would be 400 million bushels. If these projections materialize, then ending stocks would amount to 247 million bushels, of which 225 million would be tied up in the FOR and CCC stocks, leaving free stocks of 22 million bushels. Free carryover stocks of sorghum are typically on the low side because a significant amount of the new crop is harvested before October 1, but it does not show up in supply until the October-December quarter.

Sorghum prices at the farm averaged \$2.75 for October-March 1983/84. Prices strengthened in March and April as corn prices moved upward. Additional price strength is expected during the spring and early summer, with the seasonal average price moving up to about \$2.85 a bushel.

### **Farmers Enroll 44 Percent Of Base in 1984 Program**

Farmers enrolled 8.1 million of sorghum base acres in the 1984 feed grain program, which represented 44.4 percent of the total sorghum base of 18.3 million acres. In 1982, 8.3 million acres of sorghum were in compliance out of a base of 17.7 million acres.

In early February, farmers reported intentions to plant 14.8 million acres to sorghum—1.3 million less than planted in 1982. If the enrolled base was planted to its potential (90 percent) and all of the noncomplying base was planted, the area planted would total 17.4 million acres in 1984. Consequently, farmers have sufficient capacity to carry out their planting intentions. Plantings may be augmented somewhat in western Kansas by replanting wheat fields that have little prospect of a satisfactory yield.

No trend is evident in the U.S. average yield of sorghum over the past 15 years. However, 1984/85's yield is expected to be improved over last year's drought-reduced yield. If farmers carry out their planting intentions and growing conditions are normal, this year's sorghum crop would amount to about 726 million bushels. Adding carryover stocks of 247 million bushels would result in a total supply of 973 million bushels of sorghum for 1984/85. However, about 225 million bushels of this would be in the FOR and CCC stocks, not available to the market at prices most likely to prevail during 1984/85.

Total use in 1984/85 may be about 635 million bushels so that carryout stocks will rise. Exports are projected at 200 million bushels, feed and residual use at 425 million, and FSI at 10 million. The price of sorghum most likely will hold close to its long-term relationship to the price of corn, which would mean an average farm price of about \$2.35-\$2.70 a bushel.

## **Barley**

Total disappearance of barley during January-March 1984 amounted to 103.4 million bushels, down 20 million from year-earlier use. Exports of 25.1 million bushels were about double the January-March 1983 shipments. Feed and residual use amounted to only 39.7 million

bushels, a decline of 30 million bushels from year-earlier use. FSI use of barley this winter amounted to 38.6 million bushels—down 2.6 million bushels, the result of drop in use by the brewing industry.

Supply for the January-March quarter consisted of January 1 stocks of 375.7 million bushels and imports of 1.2 million bushels, totaling 376.9 million bushels. Disappearance during January-March left 273.5 million bushels of barley in stocks on April 1—23.2 million bushels less than April 1 stocks last year. Off-farm stocks of 99.7 million bushels were slightly larger than last year. Consequently, all of the stock decline was in on-farm stocks. Eighty-seven percent of the farm stocks are in five major producing States—Idaho, Minnesota, Montana, North Dakota, and South Dakota. Most of the reduction in farm stocks was in Minnesota and Montana.

The average price received by farmers for barley remained steady at \$2.55 a bushel from October through January, dropped in February, and then rose in March and the first half of April. This pattern follows almost exactly the pattern of corn prices through this period. Consequently, if further strength develops in corn prices during late spring and early summer, barley prices are most likely to follow the same pattern. For 1983/84, the season average farm price is expected to be \$2.25-\$2.55 a bushel.

#### **Lower 1984 Carryover Stocks in Prospect**

Disappearance of barley during April and May is expected to total about 100 million bushels, including almost 17 million of exports, 39 million of feed and residual use, and 43 million FSI use. This would leave about 179 million bushels in carryover stocks on June 1, compared with beginning stocks of 223 million. However, about 95 million bushels of carryover stocks will be in the FOR and 10 million in CCC stocks, leaving free stocks of 74 million bushels. This would be the lowest level for free stocks in the past 20 years.

#### **Slightly Larger Crop in Prospect for 1984; Carryover Could Rise**

Farmers reported intentions to plant 10.6 million acres to barley in 1984, the same as planted last year and about a million acres more than planted in 1982. Even though 5.4 million acres (46.6 percent of the barley base) were enrolled in the feed grain program this winter—nearly the same as in 1982—farmers still have sufficient eligible acreage to fulfill reported intentions. If plantings on enrolled base equal the maximum permitted (90 percent of enrolled base) and all of the noncomplying base is planted, the area planted could be as high as 11.1 million acres. Moreover, some farms not included in the base also plant barley. In western Kansas, barley area also may be increased by reseeding damaged winter wheat acreage.

The yield per acre of barley has trended upward about 0.8 bushels per year over the past 15 years. The trend yield for 1984 would be close to 54 bushels an acre, assuming normal planting and growing conditions. If plantings are close to intentions, a little under 10 million acres would be harvested, which, at assumed yields, would produce a crop of about 524 million bushels. Add carryover stocks of 179 million bushels and the supply

for 1984/85 would be 713 million, but with about 105 million isolated from the market in the FOR and CCC stocks. Total use may reach 470 million bushels, implying an increase in carryover stocks. Feed and residual use is projected at 225 million bushels, FSI use at 175 million, and exports at 70 million.

Barley prices have averaged low relative to corn this winter. Decreased demand from the brewing and malting industries resulted in a below-average premium for malting barley over feed barley. The farm price for the 1983/84 crop year has averaged about \$2.45 a bushel, about 74 percent of the average farm price of corn. Based on the projected supply and increase in carryover stocks, the farm price of barley most likely will weaken slightly during the 1984/85 crop year—perhaps to \$2.25-\$2.55 a bushel.

However, the assumption of normal planting and growing conditions represents a big "if." Weather has not been normal in some of the major barley-producing States this spring, and plantings are behind schedule. Continued adverse weather could drive some acreage into alternative crops. Potential yields are already jeopardized by late plantings; if less-than-excellent weather occurs during the growing season, barley crops could be adversely affected.

#### **Oats**

##### **Imports Largest Since 1953**

Imports of oats in January-March 1984 amounted to 10.6 million bushels compared with 1.6 million imported a year earlier and an average of 300,000 bushels per year for 1972-81. January-March imports brought the total for the 1983/84 crop year (June-March) to 27.2 million bushels. This is larger than total imports in any crop year since 1953/54 and the first year the United States has been a significant net importer of oats since 1954/55. A large part of U.S. imports came from Canada; significant amounts, from Sweden and Finland. A relatively high price for oats was further enhanced by the elevated exchange rate of the U.S. dollar, making the U.S. market attractive to countries with oats available for export.

Imports added to January 1 stocks of 378.4 million bushels resulted in a total supply for the January-March quarter of 389 million bushels. Total disappearance during the quarter amounted to 119.6 million bushels, a drop of 23.8 million from year-earlier disappearance.

Decreased livestock and poultry feeding was the major factor underlying the decline in use. The feed and residual disappearance amounted to 101.4 million bushels, down 23.4 million from a year earlier. Exports were unchanged at 300,000 bushels and FSI use was 17.9 million bushels, down slightly from 18.3 million used a year earlier.

April 1 stocks were reported at 269.4 million bushels, with 84.2 percent of the stocks on-farm and 15.8 million off-farm. Five major producing States—Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin—contain about 78 percent of the on-farm stocks. The balance is spread over 31 states.

Use for the balance of the crop year (April-May) is expected to total 98.2 million bushels, which would leave



carryover stocks on June 1 of 172 million. About 23.9 million bushels will be needed to complete seeding this year's crop. Food use and exports combined will take about 5.2 million bushels, and the balance, 69.1 million, would be the feed and residual category.

The oats price received by farmers averaged \$1.84 a bushel during the winter quarter, up 10 percent from the average of \$1.67 during October-December. The corn price averaged \$3.16 a bushel for both quarters; thus, the oats price strengthened relative to corn during January-March. The 1983/84 average farm price for oats is \$1.65 a bushel, 17 cents a bushel above the 1982/83 average.

Oats prices rose to their seasonal high in February, a time when corn prices dropped to their seasonal low. Moreover, prices weakened in March and April while corn prices rose sharply. This price pattern for oats appears to be related to imports. The rate of imports tapered off in November, December, and January, and oats prices rose throughout this period. Imports picked up in February; in March imports were 5.6 million bushels, the largest for any month so far this crop year. The weakness in oats prices during March and April most likely reflected the jump in imports.

#### **Planting Intentions for 1984 Point to Acreage Drop**

Farmers reported intentions to plant 13.6 million acres to oats in 1984, down 6.7 million acres from last year's plantings, but within 700,000 acres of the area planted in 1982 (the comparison with last year is not valid because a large part of the area planted last year was as a cover crop on conservation-use acreage). The 1982 harvest represents a normal relationship to plantings. The most significant drop in planting intentions was in Minnesota where farmers intend to plant 1.4 million acres this year, compared with actual plantings of 1.8 million in 1982.

The 1984 oats base is 9.9 million acres, down 500,000 acres from 1982. This year, enrollment was 14.7 percent, slightly higher than 1982's 13.8 percent. The maximum area that could be planted on the base acreage this year is 10.2 million acres—1.3 million on the enrolled base (90 percent) and 8.4 on the balance of the base. However, in 1982, the combination of planting beyond the base (on noncomplying farms) and planted area (on farms not included in the base) amounted to about 4.3 million acres. Consequently, this combination would easily enable planting intentions to be achieved or exceeded this year. In addition, oats will be seeded on some conservation-use acreage, but this area will not be harvested.

There has not been a significant trend, during the past 15 years, in the U.S. average per acre yield of oats. The 1979-83 average yield was 54.5 bushels per acre. If farmers plant near reported intentions and abandonment is normal, a crop of about 512 million bushels would be harvested this summer.

The potential crop, plus carryover stocks of 172 million bushels and imports of about a million, would give a total supply of 685 million bushels for the 1984/85 crop year. Use is projected to total about 520 million bushels in 1984/85—feed and residual disappearance, 435 million

bushels; FSI use, 80 million; and exports, 5 million. This would leave carryover stocks of about 165 million, down slightly from expected year-ending stocks of 172 million bushels this year. The 1984/85 average price is expected to be \$1.45-\$1.70 a bushel compared with 1983/84's average of \$1.65.

#### **Hay**

Hay stocks on January 1 amounted to 90.8 million short tons, the lowest stocks for this date since 1977. A number of weather-related factors accounted for the low stocks. First, the hay crop was reduced by the severe drought. Second, hay feeding had to be started earlier than usual in fall 1983 because of drought-affected ranges and pastures. Finally, widespread subnormal cold weather in December required heavier feeding of hay. During January-April, 70.2 million tons of hay were fed, leaving 20.6 million in carryover stocks on May 1—the lowest carryover stocks since 1977.

**Hay (all): Acreage, supply, and disappearance,  
1982-84**

Item	Units	1982/83	1983/84 <sup>1</sup>	1984/85 <sup>2</sup>
Acreage harvested	Mil. acres	60.7	60.4	62.5
Yield per acre	Tons	2.51	2.36	2.37
Carryover (May 1)	Mil. short tons	25.2	29.0	20.6
Production	"	152.4	142.7	148.1
Supply	"	177.6	171.7	168.7
Disappearance	"	148.6	151.1	145.0
Roughage-consuming animal units (RCAU)	Mil. units	90.4	89.6	89.0
Supply per RCAU	Tons	1.96	1.92	1.90
Disappearance per RCAU <sup>3</sup>		1.64	1.69	1.63

<sup>1</sup>Based on the May 1984 Crop Production report. <sup>2</sup>Forecast.

The price received for hay during January-April averaged \$81.05 a ton this year, almost \$10 a ton higher than the year-earlier average of \$71.95. Pasture development is delayed in many areas and some hay feeding most likely will continue into May.

If weather is normal this summer, hay supplies most likely will be rebuilt somewhat. Farmers reported intentions to harvest hay from 62.5 million acres this year—an increase of 2 million acres over the area harvested last year. If yields are normal, about 148 million tons would be harvested. Carryover stocks of 20.6 million tons would put total supply for 1984/85 at 168.7 million tons, down 3 million tons from last year. However, the roughage-consuming livestock population most likely will be down also. The potential production would permit carryover stocks to rebuild somewhat, depending on weather next fall and winter, but stocks most likely will not get back to the 1977-83 average of 28.6 million tons. Hay prices most likely would average somewhat lower than during 1983/84, but they are not expected to drop as low as \$68.60 a ton, the weighted-average price for 1982/83.

#### **FOOD AND INDUSTRIAL DEMAND**

##### **FSI Use Accounts for Growing Percentage of Total Disappearance**

Food, seed, and industrial (FSI) corn use is expected to reach 950 million bushels in 1983/84, a nearly 6-percent

increase over 1982/83. This increase contrasts with a downturn in other corn disappearance. Thus, FSI use may account for almost 14 percent of total corn disappearance, up from 12 percent in 1982/83 and 8 percent a decade ago.

Increased demand for high fructose corn syrup (HFCS) and fuel alcohol has caused the surge in FSI corn use in recent years. Production of HFCS by the wet-milling industry and fuel alcohol by both the wet-milling and dry-milling industries now accounts for over 40 percent of total FSI use. This compares with about 25 percent in 1980/81 and 4 percent in 1973/74.

Wet-millers produce about 75 percent of all alcohol, and at least 80 percent of this is fuel alcohol. About 21 percent of total wet-milling grind goes to alcohol production and 33 percent to HFCS production.

HFCS use continues to grow, mainly as a replacement for sugar in soft drinks. During 1983, HFCS-55, the type used in soft drinks, was priced 18 to 42 percent less than sugar. As demand on production capacity rose, so did HFCS prices. This eased any cost-price squeeze caused by rising corn prices.

Production capacity will be taxed again this summer as wet-millers strive to meet the strengthened demand for HFCS. Last year's decisions by the two major soft drink companies to increase the amount of HFCS allowed in their products absorbed all excess capacity in the industry.

Recently, the Coca-Cola Company raised to 100 percent the amount of HFCS it allows in its fountain syrup. This decision is expected to boost HFCS prices this summer and help absorb additional corn milling capacity which will be coming on stream in 1985.

Production of fuel alcohol slowed during the first half of the 1983/84 marketing year because of high corn prices and low gasoline prices. Production difficulties at some plants also slowed output. In addition, there was some competition from Brazilian alcohol imports, particularly in California and Florida. Even though alcohol sales softened during the winter months, sales were still about equal with a year earlier. Sales are expected to increase through the summer because that is the heavy driving season and gasoline prices are likely to pick up. In addition, several plants have ironed out their production problems and expect to operate at full capacity.

#### Corn: Food, seed, and industrial use<sup>1</sup>

Products	1980/81	1981/82	1982/83	1983/84*	1984/85**
Million bushels					
Wet-milled <sup>2</sup>	480	510	540	570	600
Dry-milled <sup>3</sup>	160	162	163	161	160
Alcohol <sup>4</sup>	75	120	180	200	245
Seed	20	19	15	19	20
Total	735	811	898	950	1,025

<sup>1</sup>Year beginning October 1. <sup>2</sup>HFCS, glucose, dextrose, and starch. <sup>3</sup>Grits (for food and beer), cornmeal, flour, cereal, snacks, and Mexican foods. <sup>4</sup>Fuel, industrial, and beverage alcohol. \*Forecast. \*\*Projection.

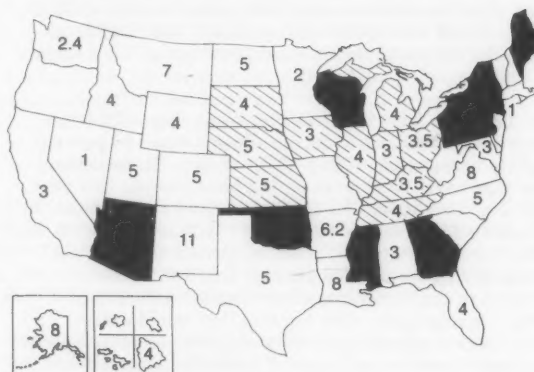
#### New Federal and State Tax Incentives Could Expand Alcohol Market

The Senate has recently approved legislation which would increase the Federal tax break on fuel alcohol-gasoline blends from 5 cents to 6.75 cents a gallon. This increase, if made law, could lead to a boost in demand for fuel alcohol, at least in the short-term. In the long-term, some States may adjust their State tax incentives downward and offset any Federal increase.

Currently, about 80 percent of fuel alcohol is produced and sold in the Corn Belt and surrounding areas (see map). This is because of availability of corn, State tax breaks with few restrictions on sales between States, and strong local support. In three of these States alcohol-gasoline blends amount to over 20 percent of gasoline sales. Iowa leads the way with over 35 percent penetration. In four States gasohol sales averaged 8 to 16 percent of gasoline sales. Several western States have large State tax breaks, but require that the fuel alcohol be produced within the State.

Some States which do not have State tax breaks may soon pass legislation implementing them. These States include New York, Pennsylvania, Wisconsin, Oklahoma, Georgia, and Mississippi. If put into effect, tax breaks in these States would open whole new market areas and could greatly expand alcohol sales. In the meantime, gasohol sales are increasing in States surrounding the Corn Belt.

#### New State Tax Incentives Could Expand Fuel Alcohol Market



- ☐ Numbers indicate tax exemption by State in cents per gallon.
- ☒ No State tax exemption, but legislation expected.
- ☒ Fuel alcohol market penetration leaders.

#### FEED DEMAND

The demand for feed grains for livestock and poultry feeding during the last half of the 1983/84 feed year (October-September) will be down from a year earlier.

The largest impact will come from reduced hog feeding as a result of a sharp cutback in this year's spring pig crop. December-February farrowings in the 10 quarterly-surveyed States were down 11 percent, and producers reported intentions to cut March-May farrowings a like amount. Producers also reported intentions to cut June-August farrowings by 13 percent.

There were 2 percent more cattle on feed April 1 in the 13 reporting States. Large second-quarter marketings and reduced numbers placed on feed are expected to result in a 4-percent decline from a year earlier in the number on feed June 1, while the number on feed October 1 most likely will about equal last year.

Broiler production during the last half of this year is expected to be up, offsetting some of the downward impact from reduced cattle and hog feeding. Dairy cows and replacement heifers, other beef cattle, horses and mules, the laying flock, turkeys, and other miscellaneous categories of livestock compose about 40 percent of total feed demand. The feed use by these categories tends to be relatively inflexible from year-to-year and from season-to-season within the year.

There may be a tendency to translate a large drop in hog production directly into a similar drop in feed demand. However, when the change in hog numbers is adjusted for its importance in total feed demand, the net change in potential feed demand is much less. Even though the number of hogs kept for market during June-September will be down about 10 percent from a year earlier, the total potential feed demand, as measured by the entire livestock and poultry population, will be down only about 3 percent.

Feed demand during the first half of the 1984/85 feeding year most likely will also be down somewhat, mainly because of reduced hog feeding. It does not appear likely that hog production will become profitable enough to encourage an increase in farrowings until March-May of 1985, at the earliest. Pigs farrowed during this period will start to have an effect on feed use in June 1985.

The GCAU's are estimated to total 75.6 million units for 1984/85, down 3.6 percent from the 78.3 million units on hand in 1983/84—and the lowest since the 1975/76 feeding year. Most of the decline derives from an expected 11 percent decrease in hog numbers. Dairy cows and heifers are expected to be down about 4 percent in 1984/85, and a small decrease will come from cattle feeding. The decrease in hog feeding is not expected to be uniformly spread across the year; most of it will have an effect during the first half of the year, with hog numbers most likely rising close to year-earlier numbers in the last half of the year.

## **WORLD COARSE GRAIN SITUATION**

Coarse grain production in 1984/85 is expected to rebound significantly from the depressed year-earlier level in the United States and South Africa, with modest increases in other major coarse grain-exporting countries. World trade in coarse grains most likely will grow as the wheat-to-corn price relationships return to a more normal level, with increased import needs in some countries. Some improvement is expected in the world economy; little growth is expected in livestock output.

## **World Production Continues Sharply Down**

Coarse grain production in 1983/84, estimated at 686 million metric tons, is about 99 million tons (13 percent) below last year's record. Much of the decrease has come as a result of reduced acreage and adverse effects of the U.S. drought. However, foreign production, at 548 million tons, is 18 million larger than a year earlier. The bulk of the larger foreign output is in the unusually large Soviet harvest and the rebound in Australian output. The Soviet harvest is estimated at 105 million tons, compared with 86 million in 1982/83. Australian output is estimated at 9.7 million tons, up substantially compared with their 1982/83 coarse grain outturn.

Major importers' production in 1983/84 is forecast at 272 million tons, 9 million higher than the previous year. However, production for all major importers less the Soviet Union—European Community (EC-10), other Western Europe, Eastern Europe, South Korea, Taiwan, Mexico and Japan—in 1983/84 was 10 million tons below 1982/83. The difference is in the Soviet Union, where production is estimated to be up 19 million tons in 1983/84.

Coarse grain production among the major foreign exporters (Canada, Australia, Argentina, Thailand, and South Africa) picked up in 1983/84 to just over 58 million tons, but remained about 10 percent below the level of 2 years ago. This decrease is due to extended drought conditions in South Africa, where the coarse-grain crop is estimated under 5 million tons for the second consecutive year in a row. Production this low will cause the country to remain a net importer of coarse grains in 1983/84. Canadian production, estimated at 21 million tons in 1983/84, remains forecast about 25 percent below the level of each of the last 2 years.

## **Supplies Fall As World Use Increases Slightly in 1983/84**

World supplies in 1983/84 (beginning stocks plus domestic production), forecast at 824 million metric tons, are about 8 percent less than the previous year. The decrease is in contrast to the 5 percent annual gain registered in 1982/83 relative to 1981/82. U.S. production was largely responsible for the decline. In spite of the fact that U.S. beginning stocks in 1983/84 (at 98 million tons) were 44 percent over the year earlier, the dramatic turnaround in coarse grain production caused U.S. supplies to fall to only 236 million tons, compared with 323 million in 1982/83. Foreign supplies in 1983/84, at 590 million tons, are 15 million tons larger than the previous year, after registering only a 4 million-ton increase in 1982/83.

World use of coarse grain in 1983/84 (762 million tons) registered a modest increase of about 4 million tons relative to 1982/83. However, during the year feed uses are estimated to fall over 2 percent to only 450 million tons. In contrast, feed use in 1982/83 was up 3 percent over the previous year. In 1983/84, an expected decline of about 15 million tons in U.S. feed use more than accounts for the world feed use decline.

Foreign feed use is forecast to increase by more than 6 million tons, reaching about 325 million in 1983/84. Most of the changes are among the major importers;

Soviet coarse grain feed use is estimated to have risen to record levels as a result of increased production. Feed grain use among the major exporters has remained relatively stable over the last 3 years.

#### **World Exports Forecast Slightly Increased for 1983/84**

World exports, exclusive of intra-EC trade, are forecast at almost 92 million tons in 1983/84, the same as the previous year, but still about 6 percent below 1981/82. Although the trend of decreasing coarse grain trade appears to have bottomed, there is no evidence of a resurgence to past high levels. Record coarse grain trade occurred in 1980/81, when flows reached almost 109 million tons, 18 percent higher than the estimate for the current year.

Among the major coarse grain-importing countries, 1983/84 looks very much like the previous year, with the exception of China, whose coarse grain imports dropped from 2.5 million tons in 1982/83 to only 0.2 million this year, as a result of record-shattering production.

Major foreign exporters of feed grains altered their trade patterns in 1983/84. Australian exports quadrupled from the drought-devastated production of 1982/83 to reach 4 million tons in 1983/84. Somewhat expanded Argentine production this year is allowing an expansion in exports of about 0.4 million tons to 12.0 million. But the major development among the major foreign coarse grain exporters was in South Africa, where drought reduced production to such low levels that the country has become a major net importer of coarse grains for the year.

#### **Production and Trade Prospects Improve in 1984/85**

World production of coarse grains in 1984/85 most likely will increase to a record 794 million tons, a rebound from the relatively low level of 1983/84; more usual growing conditions are expected to increase U.S. production, Canadian and European Community (EC-10) barley production, and South Africa corn production.

Further, the continued recovery in the global economy, lower expected coarse grain prices, and production prospects in some importing countries most likely will allow for expanded coarse grain use and trade. Soviet imports from both the United States and the rest of the world are expected to increase. The Soviet Union continues to maintain record livestock inventories in an effort to boost livestock production in the face of a forecast reduction in coarse grain output in 1984/85. Coarse grain imports by Western Europe may increase in 1984/85, although they most likely will not reach the high levels of the late 1970's and early 1980's. The Chinese corn crop is expected to be large in 1984/85, and coarse grain imports from the United States are expected to be somewhat above 1983/84's low level. Most of the U.S. grain sales, under the arrangements of the U.S.-China Long-Term Grain Agreement, will be wheat.

The expected increase in world coarse grain production in 1984/85 will most likely result in a narrowing of the wheat-corn price margin from that prevailing this spring and summer. This change would further boost coarse grain trade. More attractive corn prices add to the problem faced by the EC-10 and Australia in exporting wheat for feed use.



# Analyzing Feed and Residual Disappearance of Corn

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**Abstract:** Livestock and poultry feeding is the largest market for feed grains—particularly corn. Livestock and poultry numbers in certain categories vary substantially from season to season, whereas other categories remain rather stable—not only within the year but among years as well. These seasonally variable classes of livestock and poultry on feed each quarter are weighted so that they can be aggregated into a single measure which can then be related to the quarterly feed and residual disappearance of corn and other grains. The quarterly measures of livestock and poultry, along with certain other variables, explained a significant proportion of the feed and residual disappearance of corn during the 1973-82 period. In 1983 and 1984, the regression errors have been much larger than during the estimation period.

**Keywords:** Grain-consuming animal units, feed and residual use, seasonality.

The Department of Agriculture, for many years, has published an annual measure of grain-consuming animal units (GCAU's)<sup>1</sup>. This measure, based on annual numbers of livestock and poultry, does not reflect the seasonal variation in feed use of certain important livestock classes; this measure may also not accurately reflect cyclical swings in these livestock classes. Consequently, the annual GCAU measure is not useful in analyzing the quarterly feed and residual disappearance of feed grains. For example, for 1973-82, the coefficients of determination ( $R^2$ ) between the annual GCAU series and the feed and residual use of corn are .46 for October-December, .46 for January-March, .74 for April-May, and .41 for June-September. Consequently, in order to analyze quarterly feed use, a better indicator is needed to measure the livestock and poultry numbers actually fed each quarter.

## Construction of the GCAU Series

Dairying and beef cattle feeding and broiler, hog, and egg production composed about 86 percent of the annual GCAU measure during the 1972-81 feeding years (October-September) (table 1). Seasonal fluctuations in dairy cow numbers and the laying flock are less pronounced than for cattle feeding, hog production, or broiler production (table 2). Thus, to account for seasonal fluctuations, the GCAU series was separated into a variable component and a fixed component. The variable component was constructed from the quarterly average number of cattle on feed, broilers on feed, and hogs kept for market.

The fixed component is the remaining livestock and poultry categories. The base unit of the variable component,

one beef animal on feed, represents a daily feed consumption of 22.43 pounds. Thus, the average number of cattle on feed is multiplied by a weighting factor of 1 to give the number of units of cattle on feed; the average number of broilers on feed is multiplied by .00653. The factor to convert the number of hogs kept for market to animal units is .23 (includes an allowance for breeding herd).

The base unit of the annual GCAU is a daily average feed consumption of 11.76 pounds. Therefore, the fixed quarterly GCAU was constructed by subtracting cattle and broilers on feed and hogs for market from the annual measure, multiplying the residual by .5243 (11.76/22.43). For October-December, January-March, and April-May, a further adjustment was made to reflect the upward trend in feed consumption per cow milked since 1973. The grain roughage mix of dairy rations is modified during the summer not only to compensate for temperature but also because cows are being dried up to get ready for the next lactation. So the adjustment for trend in feed consumption was not applied to the fixed GCAU for the June-September quarter.

## Quarterly GCAU's and Feed Use of Corn

Regression analysis was used to analyze the relationship between the residual disappearance of corn and quarterly GCAU's and feed. The regression coefficients were estimated from data for the 10-year period, 1973-82. Data from 1983 were not included in the estimation of the coefficients because of the unique situation posed by the payment-in-kind (PIK) program. It was found that for the October-December and January-March quarters, the variable and fixed components could be added together and treated as a single variable without any reduction in the  $R^2$ . However, for April-May and June-September, changes in corn feed and residual use were explained better by treating the fixed and variable measures as two separate variables.

<sup>1</sup>A GCAU is a quantity of livestock or poultry that would normally consume a specified amount of grain in a year.

**Table 1.—Major components of the annual GCAU measures**

Feed Year	Cattle on feed	Hogs	Broilers	Dairy	Laying flock	Other	Total
Million units							
1972/73	22.1	20.4	6.0	12.9	8.4	10.3	80.1
1973/74	20.9	19.9	6.0	12.5	8.5	10.6	78.4
1974/75	15.6	17.4	5.7	12.9	7.9	10.9	70.0
1975/76	19.8	17.5	6.6	12.3	7.8	10.7	74.7
1976/77	19.3	19.4	6.8	12.2	7.8	10.6	76.1
1977/78	20.6	19.6	7.2	12.1	8.0	10.2	77.7
1978/79	20.3	21.7	7.9	12.0	8.1	10.4	80.4
1979/80	18.8	23.8	8.2	12.1	8.6	10.8	82.3
1980/81	17.8	22.3	8.5	12.1	8.6	11.3	80.6
1981/82	16.3	20.2	8.8	12.3	8.5	11.4	77.5
1982/83	18.4	20.2	8.3	12.4	8.2	11.0	78.5
1983/84	17.8	20.5	8.6	12.5	8.0	10.9	78.3
1984/85 <sup>1</sup>	17.5	18.9	8.5	12.0	7.8	10.9	75.6

<sup>1</sup>Forecast.

**Table 2.—Seasonal variation of livestock and poultry numbers on farms**

Quarter	Cattle on feed	Hogs	Broilers	Dairy	Laying flock
(Index, October-December=100)					
October-December	100.0	100.0	100.0	100.0	100.0
January-March	101.0	100.5	102.6	100.0	99.8
April-May	95.8	93.8	110.3	99.1	97.4
June-September	94.8	97.3	110.3	100.0	97.6

### January-March

For leap years, 1976 and 1980, corn feed and residual use during January-March was multiplied by 0.989 (90/91), thus putting all years on the basis of a 90-day quarter. When making a final forecast for the quarter in a leap year, it is necessary to multiply the feed use estimated by the regression equation by 1.011 (91/90).

In table 3, the variables used in the regression, use estimated by the regression, the regression equation, and estimated use for years beyond the sample period, 1983 and 1984, are shown. The variable and fixed GCAU's were combined into a single variable. A second variable, the average temperature for January and February in the Corn Belt, Lake States, and Northern Plains regions, increased the coefficient of determination. The  $R^2$  indicates that these two variables explain 74 percent of the feed and residual disappearance variation about the 10-year average. The regression error ranged from 0.4 percent of corn feed and residual use in 1977 to 7.8 percent in 1976.

Livestock numbers were up slightly in 1983 from 1982, but because of milder temperatures the equation estimated a drop in feed use of 49 million bushels. The reported feed and residual disappearance of corn amounted to 1.36 billion bushels, resulting in an estimated positive error of 232 million bushels—2.7 times the largest error during the 10-year estimation period. Preliminary data for 1984 yields an estimated disappearance of 1,129 million bushels compared with the feed and residual disappearance of 974 million. The error was a negative 155 million bushels.

**Table 3.—January-March GCAU's and corn disappearance<sup>1</sup>**

Year	GCAU's Variable	Fixed	Total $X_1$	Temperature $X_2$	Disappearance- $Y$	Estimated use $\hat{Y}$	Error (Y- $\hat{Y}$ )
Million units				Million bushels			
1973	26.08	16.35	42.43	25.8	1,079	1,142	-63
1974	25.47	16.40	41.87	24.0	1,162	1,130	32
1975	20.55	16.21	36.76	24.3	912	941	-29
1976	22.70	16.24	38.94	27.3	1,091	1,006	85
1977	23.40	16.31	39.71	18.5	1,075	1,079	-4
1978	24.62	16.26	40.88	13.5	1,088	1,147	-59
1979	25.97	16.75	42.72	11.6	1,255	1,224	31
1980	26.77	17.49	44.26	21.7	1,294	1,230	64
1981	25.65	17.71	43.36	26.1	1,100	1,175	75
1982	24.11	18.08	42.19	17.1	1,194	1,177	17
1983 <sup>2</sup>	24.63	17.79	42.42	28.4	1,360	1,128	+232
1984 <sup>2</sup>	24.60	17.46	42.06	25.7	974	1,129	-155

<sup>1</sup>The estimated regression equation is:  
 $Y = -290.608 + 36.840 X_1 - 5.066 X_2$ ;  $R^2 = .738$   
 $T \text{ value} = (3.943) \quad (-1.322)$

<sup>2</sup>These years are beyond the estimation period.

Additional analysis of this quarter is needed to see if an additional variable, or variables, can be found which will decrease the unexplained variance.

#### April-May

The variable and fixed components of GCAU's were treated as two separate variables in the regression (table 4). No other independent variables were used. The  $R^2$  indicates that 93 percent of feed use variance about its mean is associated with the GCAU's. For this quarter, the smallest deviation was 0.4 percent of disappearance in 1975, and the largest error was 5.5 percent of disappearance in 1979.

**Table 4.—April-May GCAU's and corn disappearance<sup>1</sup>**

Year	GCAU's		Disap- pearance	Estimated use	Error
	Variable $X_1$	Fixed $X_2$	$\bar{Y}$	$\hat{Y}$	$(Y-\hat{Y})$
	Million units		Million bushels		
1973	25.78	16.35	630	649	-19
1974	24.23	16.40	635	603	32
1975	19.72	16.21	451	453	-2
1976	22.56	16.24	549	543	6
1977	22.69	16.31	540	550	-10
1978	24.15	16.26	568	594	-26
1979	25.93	16.75	711	672	39
1980	25.95	17.49	682	708	-26
1981	25.01	17.71	685	689	-4
1982	23.63	18.08	672	663	9
1983 <sup>2</sup>	23.63	17.79	824	649	175

<sup>1</sup>The estimated regression equation is:  
 $Y = -928.26 + 31.238 X_1 + 47.195 X_2$ ;  $R^2 = .928$   
 T value = (6.685) (3.672)

<sup>2</sup>This year is beyond the estimation period.

The variable GCAU measure was unchanged from 1982 to 1983, but the fixed component decreased slightly so net feed disappearance forecast by the regression equation decreased by 14 million bushels. The reported feed and residual disappearance for April-May 1983 rose 152 million bushels to 824 million, resulting in a positive

error of 175 million, 4.5 times larger than the largest error during the 1973-82 base period.

#### June-September

The variable and fixed GCAU's were treated as two separate variables (table 5). A third highly significant variable for this quarter was the amount of corn estimated to be harvested prior to October 1. The  $R^2$  was .90, with over one-fourth of the coefficient contributed by the early harvest variable. The error ranged from 0.4 percent of use in 1973 to 6 percent in 1977 and 1980.

The variable GCAU measure rose 4 percent from 1982 to 1983 because of an increase in hog numbers, but the fixed series declined 2 percent as a result of a decrease in beef cattle herds, sheep numbers, and poultry numbers. The amount of corn harvested prior to October 1 was unchanged. The estimated feed and residual disappearance was 896 million bushels in 1983, 13 million bushels less than the balance sheet disappearance. This error is well within the error range of the previous 10 years, whereas estimates for January-March and April-May were characterized by very large positive residuals. Consequently, the factors that produced the previous two quarters' large positive errors apparently had worked their way out by the June-September quarter.

#### October-December

For this quarter, the variable and fixed GCAU series could be combined into a single variable without loss of efficiency in explaining variations in the feed and residual disappearance of corn. The  $R^2$  between the quarterly GCAU measures and feed and residual disappearance was .92. However, by adding time and the estimated amount of corn harvested prior to October 1 as additional variables, the  $R^2$  increased to .97, meaning that the equation explained 97 percent of the total variance of the feed and residual use about its mean for the 1973-82 period. The smallest residual deviation from the regression equation was 3 million bushels in 1978, .02 percent of disappearance, and the largest deviation was 56 million bushels in 1981, 3.7 percent.

**Table 5.—June-September GCAU's and corn disappearance<sup>1</sup>**

Year	GCAU's		Harvest by October 1	Disap- pearance	Estimated use	Error
	Variable $X_1$	Fixed $X_2$	$X_3$	$\bar{Y}$	$\hat{Y}$	$(Y-\hat{Y})$
	Million units			Million bushels		
1973	25.95	16.51	284	1,072	1,068	4
1974	23.13	16.56	658	925	897	28
1975	20.55	16.40	1,227	662	687	-25
1976	23.01	16.18	1,321	766	751	15
1977	23.22	16.02	1,366	792	741	51
1978	24.88	15.85	1,090	797	842	-45
1979	26.25	15.99	953	900	928	-28
1980	25.97	16.50	1,127	979	921	58
1981	24.90	16.75	1,312	831	864	-33
1982	23.79	16.89	1,008	857	883	-26
1983 <sup>2</sup>	24.77	16.52	1,009	909	896	13

<sup>1</sup>The estimated regression equation is:  
 $Y = -984.712 + 38.774 X_1 + 66.411 X_2 - .175 X_3$ ;  $R^2 = .900$   
 T value = (4.177) (1.456) (-3.506)

<sup>2</sup>This year is beyond the estimation period.

Table 6.—October-December GCAU's corn disappearance

Year	GCAU's		Total	Harvest by	Time	Disap-	Estimated	Error
	Variable	Fixed	$X_1$	October 1	$X_3$	pearance	$\hat{Y}$	$(Y-\hat{Y})$
				$X_2$		$Y$		
	Million units			Million bushels		Million bushels		
1973	23.25	16.40	39.65	284	0	1,460	1,442	18
1974	19.45	16.21	35.66	658	1	1,155	1,164	-9
1975	19.76	16.24	36.00	1,227	2	1,151	1,125	26
1976	20.99	16.31	37.30	1,321	3	1,165	1,214	-49
1977	21.82	16.26	38.08	1,366	4	1,290	1,278	12
1978	23.13	16.75	39.88	1,090	5	1,456	1,453	3
1979	23.52	17.49	41.01	953	6	1,549	1,565	-16
1980	23.12	17.71	40.83	1,127	7	1,523	1,552	-29
1981	21.94	18.08	40.02	1,312	8	1,553	1,497	56
1982	22.05	17.79	39.84	1,008	9	1,542	1,554	-12
1983 <sup>2</sup>	22.33	17.46	39.79	1,009	10	1,667	1,574	93

<sup>1</sup>The estimated regression equation is:

$$Y = -946.823 + 61.563 X_1 - .147 X_2 + 22.991 X_3; R^2 = .971$$

$$T \text{ value} = (6.096) \quad (-2.916) \quad (3.079)$$

<sup>2</sup>This year is beyond the estimation period.

For 1983, the increase in the variable component of GCAU's, because of greater hog and broiler production, was more than offset by a decrease in the fixed component. The net result was a small decline in the total GCAU variable. The early harvest variable was unchanged from a year earlier, but the time variable added a positive increment to the estimated feed use. Feed use estimated from the regression equation was 1,574 million bushels—93 million less than the 1,667 million bushels derived from the supply and disappearance balance sheet. This regression error is large relative to the 1973-82 base period but is not out of line with the dispersion evident in the January-March and April-May quarters of 1983.

### Conclusion

More research needs to be conducted on the January-March quarter to see if additional variables can be found to improve the  $R^2$ . In addition, further refinements of

the variable GCAU series could be analyzed to see if the forecasting capability of the series can be improved. Moreover, different combinations of livestock variables could be analyzed against different combinations of feed grains or feed grains and wheat feed use. The GCAU variables used here gave the best results with corn. When feed use of the other feed grains and wheat were added to corn, the  $R^2$  dropped.

The large regression errors for 1983 and 1984 (except June-September 1983) indicates that recently there has been a larger residual in the corn feed and residual use category, or the relationship between corn feeding and animal numbers has changed. This development has made forecasting corn feed and residual more difficult, because changes in the regression residuals may be related to variables yet to be fully identified and measured. However, as pointed out here, with careful specification of animal units and other variables, a very high proportion of the changes in the corn feed and residual category can be explained.



Table 1.--Feed grains: Marketing year supply, disappearance, area, and prices, 1979-84 1/

Year 2/	Supply				Disappearance				Ending stocks					
	Begin- ning stocks	Produc- tion	Imports	Total	Domestic use			Exports	Total	Govt. owned	Privately owned	Total		
					Food	Alc. ages	Seed ages						Feed and residual	disap- pearance
Million metric tons														
1979/80	46.2	238.2	0.3	284.7	15.7	5.2	1.4	138.7	161.0	71.3	232.3	7.7	44.7	52.4
1980/81	52.4	198.0	0.3	250.7	17.1	5.4	1.3	123.0	146.8	69.3	216.1	7.1	27.5	34.6
1981/82	34.6	248.5	0.3	283.4	18.9	5.5	1.4	130.6	156.4	58.6	215.0	8.9	59.5	68.4
1982/83	68.4	254.1	0.3	322.8	20.5	6.0	1.4	142.8	170.7	54.0	224.7	34.2	63.9	98.1
1983/84 4/	98.1	137.3	0.6	236.0	22.2	5.6	1.4	124.7	153.9	56.2	210.1	6.6	19.3	25.9
1984/85*	25.9	234.8 (+ 22)	0.3	261.0 (+ 22)	--	31.3 (+ 1)	--	126.9 (+ 10)	158.2 (+ 10)	58.1 (+ 6)	216.3 (+ 15)			44.7 (+ 10)
Area														
National program	Set-aside and diverted	Planted	Harvested for grain	Yield per hectare	Index	Average price received by farmers 5/		Government- support program						
						1977=100	Total payments to participants	Total participants	Million dollars					
Metric tons														
1979/80	44.3	1.9	48.1	41.5	5.74	125						6/ 247		
1980/81	42.7	---	49.1	41.1	4.82	154						7/ 412		
1981/82	42.5	---	50.0	43.3	5.74	123						8/ 423		
1982/83	---	1.3	49.3	43.3	5.87	136						8/ 418		
1983/84 4/	---	14.4	41.6	32.5	4.22							6/ 1,081		
1984/85														

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year for corn and sorghum begins October 1; for oats and barley, June 1. 3/ Includes total Government loans (original and resale). 4/ Preliminary. 5/ Excludes support payments. 6/ Deficiency and diversion payments. 7/ Disaster payments. 8/ Deficiency and disaster payments. \*The probability is 2 out of 3 that the outcome will be within this range.



Table 3.--Sorghum: Marketing year supply and disappearance, area, and prices, 1979-84

Year beginning October 1	Supply			Disappearance					Ending stocks Sept. 30					
	Begin- ning stocks	Produc- tion	Imports	Food	Domestic use			Exports	Total	Govt. owned	Privately owned	Total		
					Seed ages	Seed and residual	Feed							
													Alc.	Alc.
Million bushels														
1979/80	159.5	808.9	---	6.0	4.6	2.0	484.4	497.0	324.9	821.9	43.9	102.6	146.5	
1980/81	146.5	579.2	---	5.0	4.3	2.0	301.2	312.5	304.6	617.1	38.2	70.4	108.6	
1981/82	108.6	879.2	---	4.3	4.8	2.0	431.0	442.1	249.1	691.2	42.9	253.7	296.6	
1982/83	296.6	841.4	---	1,138.0	4.2	3.9	1.8	514.9	524.8	214.3	739.1	175.6	223.3	398.9
1983/84 2/	398.9	483.1	---	882.0	4.2	3.8	2.0	400.0	410.0	225.0	635.0	75.0	172.0	247.0
1984/85*	247.0	726.0 (+ 75)	---	973.0 (+ 75)	--	10.0	--	425.0 (+ 50)	435.0 (+ 30)	200.0 (+ 70)	635.0 (+ 50)	338.0 (+ 50)		
Area														
National program	Set-aside and diverted	Planted	Harvested for grain	Yield per acre	Received by farmers 3/	Average prices				Government-support program				
						Kansas City	Texas	Gulf ports	National	average	Target	payments to participants		
						No. 2 Yellow	No. 2 Yellow	No. 2 Yellow	No. 2 Yellow	loan rate	price	rate		
	Million acres	Million acres	Busbels	Busbels	Busbels	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	Dollars per cwt.	MI. dol.
1979/80	15.9	1.2	15.3	12.9	62.7	4.18	4.65	4.97	5.54	3.57	4.18	5/ 99		
1980/81	12.8	---	15.6	12.5	46.3	5.25	5.36	5.86	6.16	3.82	4.46	6/ 101		
1981/82	14.3	---	16.0	13.7	64.1	4.27	4.29	4.85	4.97	4.07	4.55	7/ 268		
1982/83	---	0.7	16.1	14.2	59.1	4.50	4.96	5.30	5.55	4.32	4.64	7/ 66		
1983/84 2/	---	5.1	11.8	9.9	48.8	5.09	4/ 5.24	4/ 5.43	4/ 5.90	4.50	4.86	8/ 110		
1984/85						4.20-4.91				4.32				

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ October 1983-April 1984 average. 5/ Deficiency, disaster, and diversion payments. 6/ Disaster payments. 7/ Deficiency and disaster payments. 8/ Diversion payments. \*The probability is 2 out of 3 that the outcome will be within this range.

Table 4.--Barley: Marketing year supply and disappearance, area, and prices, 1979-84

Year beginning June 1	Supply			Disappearance				Ending stocks May 31		
	Production	Imports	Total	Domestic use		Exports	Total	Govt. owned	Privately owned	Total
				Food	Alc.					
				ages	beverage	Seed	Feed and residual			
Million bushels										
1979/80	382.8	11.8	622.6	7.0	150.9	14.0	203.8	375.7	54.8	430.5
1980/81	361.0	10.2	563.3	7.0	155.3	13.2	173.8	349.3	76.7	426.0
1981/82	479.3	9.6	626.2	6.9	150.9	16.3	202.3	376.4	100.1	476.5
1982/83	522.4	10.7	682.8	7.2	145.5	17.4	242.7	412.8	47.2	460.0
1983/84 2/	519.0	7.0	748.8	6.9	146.0	17.1	299.8	469.8	100.0	569.8
1984/85*	524.0 (+ 50)	10.0	713.1 (+ 50)	--	175.0 (+ 5)	--	225.0 (+ 25)	400.0 (+ 35)	70.0 (+ 15)	470.0 (+ 35)
Area										
	Set-aside		Harvested for grain	Yield per acre		Received by farmers	Average prices		Government-support program	
	and diverted	planted		harvested	acre		Minneapolis No. 2 or better, feed	Portland No. 2 rate	National average	Total payments to participants
							3/			
----- Million acres ----- Bushels ----- Dollars per bushel ----- Mil. dol.										
1979/80	0.7	8.1	7.5	50.9	2.29	2.29	2.16	2.87	2.69	1.71
1980/81	---	8.3	7.3	49.6	2.86	2.86	2.60	3.64	3.34	1.83
1981/82	---	9.7	9.2	52.3	2.45	2.45	2.21	3.06	2.87	1.95
1982/83	0.4	9.6	9.1	57.3	2.23	2.23	1.76	2.53	2.52	2.08
1983/84 2/	1.1	10.6	9.9	52.4	2.45	2.45	4/ 2.45	4/ 2.82	4/ 2.89	2.16
1984/85					2.25-2.55					2.08

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ June 1983-April 1984 average. 5/ Deficiency, disaster, and diversion payments. 6/ Deficiency and disaster payments. 7/ Disaster payments. 8/ Deficiency payments. 9/ Deficiency and diversion payments. \*The probability is 2 out of 3 that the outcome will be within this range.





Table 6.--Feed grains: Feed year supply and disappearance, specified periods, 1979-83  
(corn, sorghum, oats, barley)

Year and periods beginning October 1	Supply			Disappearance					Ending stocks		
	Begin- ning stocks	Produc- tion	Imports	Domestic use			Exports	Total	Govt. owned	Privately owned	Total
				Food ages	Bever- ages	Alc. and residual					
Million metric tons											
1979/80											
Oct.-Dec.	55.5	222.2	0.1	277.8	3.5	1.2	0.1	47.6	52.4	19.2	71.6
Jan.-Mar.	206.2	---	0.1	206.3	3.2	1.3	0.3	39.6	44.4	17.8	62.2
Apr.-May	144.1	---	2/	144.1	2.5	1.0	0.8	20.3	24.6	11.6	36.2
June-Sept.	107.9	14.5	0.1	122.5	6.5	1.9	0.2	30.4	39.0	23.1	62.1
Mkt. year	55.5	236.7	0.3	292.5	15.7	5.4	1.4	137.9	160.4	71.7	232.1
1980/81											
Oct.-Dec.	60.4	183.4	0.1	243.9	3.7	1.2	0.1	45.5	50.5	20.5	71.0
Jan.-Mar.	172.9	---	0.1	173.0	3.2	1.3	0.3	32.1	36.9	18.7	55.6
Apr.-May	117.4	---	2/	117.4	2.8	1.0	0.8	20.8	25.4	11.3	36.7
June-Sept.	80.7	17.8	0.1	98.6	7.5	1.8	0.2	24.8	34.3	18.8	53.1
Mkt. year	60.4	201.2	0.3	261.9	17.2	5.3	1.4	123.2	147.1	69.3	216.4
1981/82											
Oct.-Dec.	45.5	230.7	0.1	276.3	4.1	1.1	0.1	47.4	52.7	16.6	69.3
Jan.-Mar.	207.0	---	0.1	207.1	3.5	1.4	0.3	36.6	41.8	14.8	56.6
Apr.-May	150.5	---	0.1	150.6	3.1	1.0	0.9	20.1	25.1	11.2	36.3
June-Sept.	114.3	20.4	0.1	134.8	8.2	1.9	0.2	26.3	36.6	15.8	52.4
Mkt. year	45.5	251.1	0.4	297.0	18.9	5.4	1.5	130.4	156.2	58.4	214.6
1982/83											
Oct.-Dec.	82.4	233.7	0.1	316.2	4.7	1.4	0.1	48.1	54.3	14.9	69.2
Jan.-Mar.	247.0	---	0.1	247.1	3.8	1.5	0.2	41.1	46.6	14.8	61.4
Apr.-May	185.7	---	0.1	185.8	3.3	1.0	0.9	24.7	29.9	8.3	38.2
June-Sept.	147.6	18.2	0.3	166.1	8.8	2.1	0.2	30.4	41.5	16.1	57.6
Mkt. year	82.4	251.9	0.6	334.9	20.6	6.0	1.4	144.3	172.3	54.1	226.4
1983/84											
Oct.-Dec.	108.5	119.0	0.1	227.6	5.3	1.2	0.1	49.7	56.3	15.7	72.0
Jan.-Mar.	155.6	---	0.2	155.8	4.3	1.3	0.2	30.1	35.9	15.5	51.4
Apr.-May											
June-Sept.											
Mkt. year											

1/ Includes quantity under loan and farmer-owned reserve. 2/ Less than 50,000 metric tons.

Table 7.--Corn: Marketing year supply and disappearance, specified periods, 1979-83

Year and periods beginning October 1	Supply			Disappearance					Ending stocks					
	Begin- ning stocks	Produc- tion	Imports	Total	Food 1/ ages 2/	Alc. bever- ages 2/	Seed residual	Feed and Total	Exports	Total disap- pearance	Govt. owned	Private- ly owned 3/	Total	
Million bushels														
1979/80														
Oct.-Dec.	1,303.9	7,938.8	0.3	9,243.0	128.2	16.3	---	1,549.4	1,693.9	662.9	2,356.8	99.7	6,786.5	6,886.2
Jan.-Mar.	6,886.2	---	0.3	6,886.5	116.6	18.4	4.0	1,308.2	1,447.2	582.0	2,029.2	101.2	4,756.1	4,857.3
Apr.-May	4,857.3	---	0.1	4,857.4	93.2	13.9	12.0	682.3	801.4	385.6	1,187.0	213.5	3,456.9	3,670.4
June-Sept.	3,670.4	---	0.4	3,670.8	244.8	23.7	4.0	978.7	1,251.2	802.1	2,053.3	256.3	1,361.2	1,617.5
Mkt. year	1,303.9	7,938.8	1.1	9,243.8	582.8	72.3	20.0	4,518.6	5,193.7	2,432.6	7,626.3	256.3	1,361.2	1,617.5
1980/81														
Oct.-Dec.	1,617.5	6,644.8	0.2	8,262.5	136.3	16.6	---	1,523.0	1,675.9	727.8	2,403.7	254.3	5,604.5	5,858.8
Jan.-Mar.	5,858.8	---	0.3	5,859.1	116.3	18.3	4.0	1,100.4	1,239.0	632.9	1,871.9	250.0	3,737.2	3,987.2
Apr.-May	3,987.2	---	0.1	3,987.3	106.7	13.8	12.2	684.7	817.4	395.7	1,213.1	251.6	2,522.6	2,774.2
June-Sept.	2,774.2	---	0.6	2,774.8	282.5	24.6	4.0	830.9	1,142.0	598.8	1,740.8	237.8	796.2	1,034.0
Mkt. year	1,617.5	6,644.8	1.2	8,263.5	641.8	73.3	20.2	4,139.0	4,874.3	2,355.2	7,229.5	237.8	796.2	1,034.0
1981/82														
Oct.-Dec.	1,034.0	8,201.6	0.4	9,236.0	153.2	16.8	---	1,552.8	1,722.8	545.5	2,268.3	247.6	6,720.1	6,967.7
Jan.-Mar.	6,967.7	---	0.3	6,968.0	128.4	20.2	3.9	1,194.3	1,346.8	489.4	1,836.2	261.7	4,870.1	5,131.8
Apr.-May	5,131.8	---	0.1	5,131.9	119.4	15.2	12.1	672.1	818.8	409.0	1,227.8	269.7	3,634.4	3,904.1
June-Sept.	3,904.1	---	0.4	3,904.5	308.4	30.5	3.4	856.8	1,199.1	523.0	1,722.1	302.4	1,880.0	2,182.4
Mkt. year	1,034.0	8,201.6	1.2	9,236.8	709.4	82.7	19.4	4,276.0	5,087.5	1,966.9	7,054.4	302.4	1,880.0	2,182.4
1982/83														
Oct.-Dec.	2,182.4	8,359.4	0.3	10,542.1	175.2	27.9	---	1,542.1	1,745.2	512.7	2,257.9	429.0	7,855.2	8,284.2
Jan.-Mar.	8,284.2	---	0.2	8,284.4	140.0	28.0	1.3	1,359.9	1,529.2	507.9	2,037.1	483.4	5,763.9	6,247.3
Apr.-May	6,247.3	---	0.1	6,247.4	125.0	17.6	10.3	823.7	976.6	308.5	1,285.1	491.7	4,470.6	4,962.3
June-Sept.	4,962.3	---	0.3	4,962.6	334.1	35.5	2.9	908.9	1,281.4	540.9	1,822.3	1,166.3	1,974.0	3,140.3
Mkt. year	2,182.4	8,359.4	0.9	10,542.7	774.3	109.0	14.5	4,634.6	5,532.4	1,870.0	7,402.4	1,166.3	1,974.0	3,140.3
1983/84														
Oct.-Dec.	3,140.3	4,203.8	0.3	7,344.4	200.3	19.7	---	1,661.2	1,881.2	528.9	2,410.1	1,229.7	3,704.6	4,934.3
Jan.-Mar.	4,934.3	---	0.8	4,935.1	160.0	22.0	1.1	984.4	1,167.5	509.8	1,677.3	---	---	3,267.8
Apr.-May	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June-Sept.	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mkt. year	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1/ Includes industrial products. 2/ Malt beverage and distilled liquor grain products converted to a corn basis. 3/ Includes quantity under loan and farmer-owned reserve.

Table 8.--Sorghum: Marketing year supply and disappearance, specified periods, 1979-83

Year and periods beginning October 1	Supply		Disappearance					Ending stocks		
	Begin- ning stocks	Produc- tion	Imports	Total	Domestic use			Total	Govt. owned	Privately owned
					Food	Alc. ages	Seed and residual			
Million bushels										
1979/80										
Oct.-Dec.	159.5	808.9	---	968.4	1.6	1.3	243.6	320.7	45.3	602.4
Jan.-Mar.	647.7	---	---	647.7	1.6	1.2	140.2	251.7	45.6	350.4
Apr.-May	396.0	---	---	396.0	1.4	0.7	54.5	118.1	45.6	277.9
June-Sept.	277.9	---	2/	277.9	1.4	1.4	46.1	131.4	43.9	102.6
Mkt. year	159.5	808.9	2/	968.4	6.0	4.6	484.4	821.9	43.9	102.6
1980/81										
Oct.-Dec.	146.5	579.2	2/	725.7	1.6	1.2	192.3	261.3	43.7	420.7
Jan.-Mar.	464.4	---	2/	464.4	1.6	0.9	63.8	150.6	43.5	270.3
Apr.-May	313.8	---	2/	313.8	0.8	0.7	84.8	129.2	43.8	140.8
June-Sept.	184.6	---	2/	184.6	1.0	1.5	-39.7	76.0	38.2	70.4
Mkt. year	146.5	579.2	2/	725.7	5.0	4.3	301.2	617.1	38.2	70.4
1981/82										
Oct.-Dec.	108.6	879.2	2/	987.8	1.3	1.3	217.9	298.3	38.4	651.1
Jan.-Mar.	689.5	---	2/	689.5	1.3	1.3	150.5	227.6	38.2	423.7
Apr.-May	461.9	---	2/	461.9	0.5	0.8	57.8	82.1	38.3	341.5
June-Sept.	379.8	---	2/	379.8	1.2	1.4	4.8	83.2	42.9	253.7
Mkt. year	108.6	879.2	2/	987.8	4.3	4.8	431.0	691.2	42.9	253.7
1982/83										
Oct.-Dec.	296.6	841.4	2/	1,138.0	1.4	1.0	258.1	327.5	45.7	763.8
Jan.-Mar.	810.5	---	2/	810.5	1.2	1.0	125.8	190.6	47.8	572.1
Apr.-May	619.9	---	2/	619.9	0.4	0.6	75.9	91.8	54.0	474.1
June-Sept.	528.1	---	2/	528.1	1.2	1.3	55.1	129.2	175.6	223.3
Mkt. year	296.6	841.4	2/	1,138.0	4.2	3.9	514.9	739.1	175.6	223.3
1983/84										
Oct.-Dec.	398.9	483.1	---	882.0	1.3	1.0	165.5	229.9	189.3	462.8
Jan.-Mar.	652.1	---	---	652.1	1.3	1.1	107.2	187.6		
Apr.-May										
June-Sept.										

1/ Includes quantity under loan and farmer-owned reserve. 2/ Less than 50,000 bushels.





Table 10.--Oats: Marketing year supply and disappearance, specified periods, 1979-83

Year and periods beginning June 1	Supply			Disappearance					Ending stocks			
	Beginning stocks	Production	Imports:	Total	Domestic use			Exports	Total	Disap- pearance	Govt. owned	Privately: owned
					Food	Alc. beverage	Seed and residual					
					ages							1/
Million bushels												
1979/80												
June-Sept.	280.0	526.6	0.3	806.9	14.6	---	1.7	221.6	237.9	0.9	238.8	2.6
Oct.-Dec.	568.1	---	0.2	568.3	10.4	---	1.7	77.5	89.6	1.9	91.5	2.6
Jan.-Mar.	476.8	---	0.2	477.0	10.3	---	6.9	119.7	136.9	0.5	137.4	2.7
Apr.-May	339.6	---	0.2	339.8	5.4	---	24.3	72.9	102.6	0.8	103.4	2.7
Mkt. year	280.0	526.6	0.9	807.5	40.7	---	34.6	491.7	567.0	4.1	571.1	2.7
1980/81												
June-Sept.	236.4	458.3	0.6	695.3	15.0	---	1.8	190.0	206.8	3.9	210.7	2.7
Oct.-Dec.	484.6	---	0.2	484.8	10.0	---	1.8	79.2	91.0	2.8	93.8	2.7
Jan.-Mar.	391.0	---	0.3	391.3	10.0	---	7.0	115.6	132.6	2.6	135.2	2.5
Apr.-May	256.1	---	0.2	256.3	6.0	---	22.4	47.0	75.4	4.0	79.4	2.3
Mkt. year	236.4	458.3	1.3	696.0	41.0	---	33.0	431.8	505.8	13.3	519.1	2.3
1981/82												
June-Sept.	176.9	509.2	0.3	686.4	16.0	---	2.0	206.7	224.7	3.2	227.9	1.7
Oct.-Dec.	458.5	---	0.2	458.7	10.0	---	2.0	80.3	92.3	1.2	93.5	1.7
Jan.-Mar.	365.2	---	0.2	365.4	10.0	---	7.3	110.0	127.3	1.2	128.5	1.7
Apr.-May	236.9	---	0.9	237.8	5.2	---	24.1	55.5	84.8	1.0	85.8	0.7
Mkt. year	176.9	509.2	1.6	687.7	41.2	---	35.4	452.5	529.1	6.6	535.7	0.7
1982/83												
June-Sept.	152.0	620.5	0.8	773.3	16.2	---	2.0	170.3	188.5	1.3	189.8	0.6
Oct.-Dec.	583.5	---	0.2	583.7	10.0	---	2.0	95.1	107.1	1.0	108.1	0.7
Jan.-Mar.	475.6	---	1.6	477.2	10.7	---	7.6	124.8	143.1	0.3	143.4	0.7
Apr.-May	333.8	---	1.3	335.1	4.8	---	31.7	68.0	104.5	0.4	104.9	0.7
Mkt. year	152.0	620.5	3.9	776.4	41.7	---	43.3	458.2	543.2	3.0	546.2	0.7
1983/84												
June-Sept.	230.2	477.3	11.7	719.2	15.8	---	1.9	195.4	213.1	0.8	213.9	1.1
Oct.-Dec.	505.3	---	4.9	510.2	9.9	---	1.9	119.3	131.1	0.7	131.8	1.4
Jan.-Mar.	378.4	---	10.6	389.0	10.5	---	7.4	101.4	119.3	0.3	119.6	0.3
Apr.-May												
Mkt. year												

1/ Includes quantity under loan and farmer-owned reserve.

Table 11.--Average prices received by farmers, United States, by months, 1979-84

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average weighted by sales 1/
<u>Dollars per bushel</u>													
<b>Corn</b>													
1979	2.41	2.27	2.38	2.45	2.39	2.40	2.36	2.42	2.49	2.73	2.92	3.01	2.52
1980	2.99	3.10	3.19	3.19	3.22	3.25	3.24	3.24	3.17	3.14	2.87	2.55	3.11
1981	2.45	2.34	2.39	2.54	2.44	2.46	2.55	2.60	2.57	2.50	2.30	2.15	2.50
1982	1.98	2.13	2.26	2.36	2.56	2.71	2.95	3.03	3.04	3.13	3.35	3.32	2.68
1983	3.15	3.17	3.15	3.15	3.11	3.21	*3.36						
<b>Sorghum</b>													
	<u>Dollars per cwt</u>												
1979	3.90	3.99	3.90	4.05	3.98	4.05	3.96	4.04	4.49	4.95	5.12	5.12	4.18
1980	5.36	5.48	5.49	5.48	5.33	5.17	5.25	5.16	5.03	4.84	4.55	4.07	5.25
1981	3.90	3.87	3.95	4.09	4.08	4.00	4.10	4.35	4.17	3.96	3.95	3.80	4.27
1982	3.70	3.78	3.97	4.09	4.42	4.67	4.92	5.05	5.05	5.03	5.29	5.26	4.50
1983	5.01	4.98	4.92	4.93	4.74	4.85	*4.95						
Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Average weighted by sales 1/
<u>Dollars per bushel</u>													
<b>Oats</b>													
1979	1.35	1.33	1.24	1.29	1.31	1.41	1.31	1.39	1.37	1.34	1.38	1.43	1.36
1980	1.48	1.50	1.53	1.63	1.65	1.84	1.92	1.98	2.01	2.08	2.05	2.05	1.79
1981	1.99	1.84	1.72	1.74	1.78	1.88	1.94	1.97	1.99	2.02	1.99	1.99	1.89
1982	1.88	1.57	1.39	1.35	1.32	1.40	1.44	1.46	1.48	1.48	1.54	1.54	1.48
1983	1.50	1.46	1.45	1.55	1.62	1.67	1.73	1.81	1.88	1.82	*1.77		
<b>Barley</b>													
1979	2.30	2.22	2.23	2.33	2.32	2.40	2.32	2.27	2.23	2.18	2.15	2.21	2.29
1980	2.36	2.52	2.59	2.65	2.81	2.90	2.97	3.09	3.05	3.04	3.04	3.00	2.86
1981	2.94	2.41	2.37	2.44	2.38	2.49	2.48	2.50	2.40	2.40	2.42	2.53	2.45
1982	2.39	2.16	2.20	2.17	1.98	2.06	2.19	2.16	2.00	2.09	2.22	2.37	2.23
1983	2.32	2.20	2.34	2.46	2.53	2.55	2.55	2.55	2.47	2.50	*2.62		
Item and year beginning May 1	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average weighted by sales
<u>Dollars per ton</u>													
<b>Hay (mid month)</b>													
1979	65.60	58.00	56.00	57.50	59.00	60.80	58.90	60.10	59.10	60.00	57.40	60.10	59.50
1980	69.30	65.10	67.00	67.20	71.90	77.20	75.00	74.80	72.80	72.50	69.80	68.20	71.00
1981	75.30	66.90	64.00	63.90	62.70	64.80	65.40	65.70	67.90	69.90	69.50	73.30	67.10
1982	77.50	69.60	66.10	65.00	66.80	67.10	68.70	68.60	70.50	73.50	70.10	74.20	68.80
1983	83.90	75.30	72.70	72.60	75.40	78.50	76.60	77.90	80.00	81.20	80.50	82.50	76.20

1/ Includes an allowance for unredeemed loans and purchase agreement deliveries valued at the average loan rate, by States; excludes Government payments.

\*Preliminary.

Source: Agricultural Prices, Crop Reporting Board, USDA.

Table 12.--Cash prices at principal markets, 1979-84

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Simple average
<u>Dollars per bushel</u>													
CORN No. 2 Yellow, St. Louis 1/													
1979	2.59	2.51	2.66	2.50	2.64	2.54	2.53	2.60	2.66	3.01	3.31	3.26	2.73
1980	3.35	3.53	3.59	3.60	3.47	3.42	3.49	3.42	3.33	3.34	3.03	2.61	3.35
1981	2.53	2.59	2.54	2.65	2.61	2.66	2.78	2.78	2.75	2.68	2.42	2.32	2.61
1982	2.12	2.43	2.49	2.52	2.79	2.99	3.24	3.24	3.27	3.39	3.68	3.60	2.98
1983	3.50	3.53	3.45	3.41	3.31	3.55	*3.61						
CORN No. 2 Yellow, Omaha													
1979	2.37	2.32	2.36	2.26	2.33	2.23	2.32	2.43	2.50	2.81	2.98	3.01	2.49
1980	3.16	3.34	3.30	3.29	3.18	3.17	3.24	3.24	3.19	3.15	2.79	2.51	3.13
1981	2.44	2.39	2.37	2.47	2.45	2.48	2.61	2.65	2.65	2.54	2.23	2.23	2.46
1982	2.12	2.35	2.37	2.42	2.62	2.82	3.09	3.10	3.11	3.18	3.39	3.32	2.82
1983	3.23	3.24	3.17	3.11	3.03	3.25	*3.33						
SORGHUM No. 2 Yellow, Kansas City													
<u>Dollars per cwt</u>													
1979	4.42	4.41	4.57	4.21	4.35	4.20	4.15	4.31	4.49	5.36	5.71	5.61	4.65
1980	5.65	5.91	5.82	5.79	5.52	5.46	5.49	5.38	5.23	5.29	4.58	4.16	5.36
1981	4.14	4.14	4.27	4.44	4.26	4.28	4.45	4.48	4.50	4.38	4.02	4.06	4.29
1982	3.85	4.25	4.37	4.54	4.87	5.08	5.30	5.37	5.37	5.32	5.69	5.55	4.96
1983	5.37	5.25	5.16	5.09	5.03	5.40	*5.36						
Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
<u>Dollars per bushel</u>													
OATS No. 2 Heavy, Minneapolis													
1979	1.68	1.60	1.47	1.55	1.65	1.67	1.59	1.52	1.50	1.48	1.52	1.62	1.57
1980	1.67	1.80	1.70	1.86	1.96	2.15	2.16	2.20	2.25	2.23	2.21	2.23	2.04
1981	2.18	2.02	1.99	2.02	2.09	2.28	2.10	2.23	2.26	2.16	2.21	2.16	2.14
1982	2.12	1.87	1.53	1.51	1.51	1.67	1.67	1.67	1.63	1.63	1.73	1.71	1.69
1983	1.67	1.60	1.79	1.94	2.00	1.97	1.94	1.98	1.82	1.87	*1.89		
BARLEY No. 2 or Better Feed, Minneapolis													
1979	2.16	2.39	2.15	2.22	2.34	2.11	2.15	2.09	2.04	2.06	2.12	2.09	2.16
1980	2.15	2.48	2.39	2.43	2.77	3.03	2.75	2.81	2.90	2.63	2.51	2.39	2.60
1981	2.09	2.26	2.35	2.21	2.26	2.31	2.06	2.20	2.27	2.16	2.16	2.24	2.21
1982	2.12	1.85	1.72	1.69	1.54	1.58	1.59	1.63	1.72	1.73	2.01	1.95	1.76
1983	1.96	1.95	2.42	2.61	2.60	2.53	2.39	2.55	2.56	2.65	*2.74		
BARLEY No. 3 or Better Malting, 65% or Better Plump, Minneapolis													
1979	2.80	2.82	2.67	3.10	3.18	3.06	2.93	2.87	2.81	2.69	2.73	2.82	2.87
1980	2.99	3.36	3.27	3.63	3.80	3.88	3.77	3.75	3.83	3.71	3.84	3.80	3.64
1981	3.34	2.95	3.15	3.05	3.02	3.07	2.92	3.00	3.14	2.99	2.98	3.05	3.06
1982	2.93	2.63	2.48	2.37	2.42	2.45	2.37	2.38	2.42	2.45	2.68	2.76	2.53
1983	2.60	2.54	2.76	2.90	2.96	2.95	2.77	2.85	2.76	2.91	*3.04		

\* Preliminary.

Source: Grain and Feed Market News, AMS, USDA.

Table 13.--Feed-price ratios for livestock, poultry, and milk, by months, 1979-84

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
<b>HOG/CORN, U.S. basis 1/</b>													
1979	14.0	15.2	15.5	14.8	15.4	13.9	11.9	11.8	13.3	15.1	15.8	15.3	14.3
1980	15.8	14.7	13.7	12.8	12.8	11.9	12.0	12.6	15.0	15.7	17.1	19.1	14.4
1981	18.4	17.7	16.3	17.1	19.8	19.8	20.1	21.8	22.4	23.1	26.6	28.5	21.0
1982	28.2	24.6	23.7	23.4	21.9	18.6	16.0	15.1	14.4	13.9	13.9	13.3	18.9
1983 2/	12.8	11.8	14.0	15.3	14.6	14.3	14.1						
<b>BEEF-STEER/CORN, Omaha 3/</b>													
1979	27.8	28.9	29.1	29.4	29.0	30.0	27.2	26.6	26.6	25.1	24.3	23.1	27.3
1980	21.3	19.5	19.5	19.1	19.3	19.4	20.0	20.6	21.4	21.5	23.8	26.0	21.0
1981	25.2	25.0	25.0	24.6	25.9	26.5	26.5	27.2	26.5	26.1	29.2	27.5	26.3
1982	27.7	25.1	25.2	24.5	23.4	22.7	21.9	21.8	21.2	19.6	18.1	17.8	22.4
1983 2/	18.4	18.3	19.8	21.6	22.1	21.1	20.4						
<b>MILK/FEED, U.S. basis 4/</b>													
1979	1.55	1.59	1.54	1.54	1.56	1.56	1.55	1.53	1.50	1.48	1.42	1.40	1.52
1980	1.43	1.40	1.39	1.39	1.39	1.41	1.39	1.35	1.36	1.40	1.43	1.48	1.40
1981	1.53	1.56	1.54	1.55	1.53	1.52	1.50	1.46	1.46	1.47	1.49	1.57	1.52
1982	1.61	1.62	1.60	1.58	1.56	1.55	1.49	1.45	1.43	1.45	1.41	1.36	1.51
1983 2/	1.39	1.36	1.35	1.33	1.33	1.33	1.32						
<b>EGG/FEED, U.S. basis 5/</b>													
1979	6.1	6.8	7.3	6.6	6.0	6.4	6.0	5.4	5.6	5.7	6.0	6.2	6.1
1980	5.7	6.0	6.6	5.9	5.7	5.6	5.9	5.2	5.2	5.5	5.8	6.4	5.8
1981	6.5	7.2	6.7	6.6	6.8	7.1	6.6	5.6	5.3	5.7	5.3	6.0	6.3
1982	6.3	6.3	6.0	5.7	5.8	6.2	5.8	6.1	5.9	5.7	6.1	6.0	6.0
1983 2/	6.3	6.9	7.6	8.8	8.6	7.4	8.5						
<b>BROILER/FEED, U.S. basis 6/</b>													
1979	2.2	2.6	2.7	2.8	2.6	2.5	2.3	2.6	2.6	3.3	3.0	2.9	2.7
1980	2.8	2.5	2.5	2.6	2.6	2.6	2.3	2.4	2.6	2.6	2.5	2.4	2.5
1981	2.4	2.4	2.3	2.6	2.6	2.6	2.5	2.6	2.7	2.6	2.4	2.6	2.5
1982	2.5	2.5	2.4	2.6	2.7	2.4	2.3	2.4	2.6	2.8	2.8	2.8	2.6
1983 2/	2.5	2.7	2.8	3.0	3.1	3.1	2.8						
<b>TURKEY/FEED, U.S. basis 7/</b>													
1979	3.9	4.5	4.3	3.8	3.6	3.5	3.4	3.1	3.1	3.5	3.5	3.7	3.7
1980	4.0	3.9	3.5	3.1	3.1	3.2	3.0	3.1	3.3	3.3	3.2	3.1	3.3
1981	2.8	3.1	2.9	3.0	3.0	3.0	3.0	2.9	3.2	3.4	3.4	3.8	3.1
1982	3.9	3.9	3.0	2.8	2.9	2.9	2.7	2.9	2.9	2.8	2.8	3.0	3.0
1983 2/	3.0	3.0	3.5	3.6	3.2	3.3	3.4						

1/ Number bushels of corn equal in value to 100 pounds of hog, live weight.

2/ Preliminary.

3/ Based on price of beef-steers 900-1,100 pounds, choice instead of average grade all steers previously published.

4/ Pounds of 16 percent mixed dairy feed equal in value to 1 pound whole milk.

5/ Pounds of laying feed equal in value to 1 dozen eggs.

6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight.

7/ Pounds of turkey grower feed equal in value to 1 pound turkey, live weight.

Source: Agricultural Prices, Crop Reporting Board, USDA.

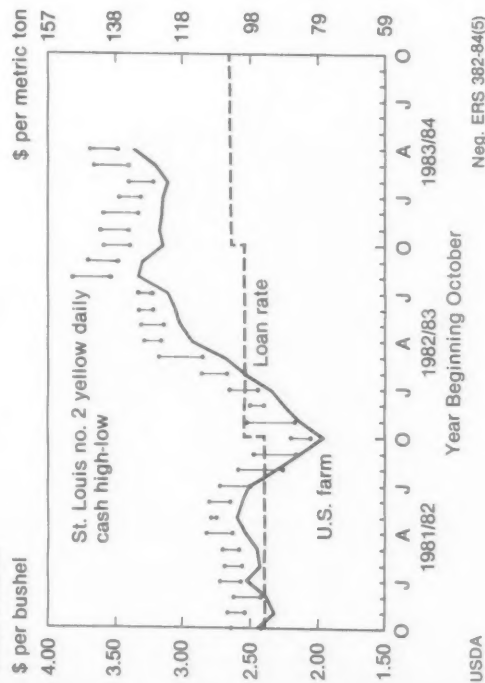


Table 14.--Price trends, selected feeds, and corn products

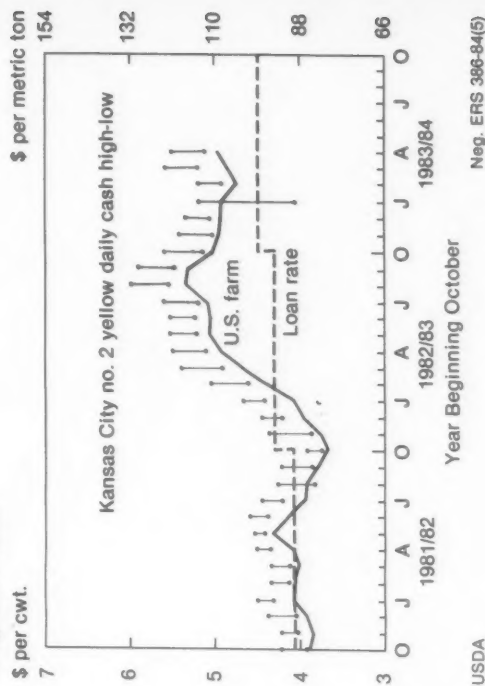
Item	Unit	Oct.-Sept. 1982/83 1/	1983		1984		
			Dec.	Jan.	Feb.	Mar.	Apr.
<b>WHOLESALE, MOSTLY BULK 2/</b>							
Soybean meal, 44% solvent, Decatur	\$/ton	187	217	202	184	196	190
Soybean meal, high protein, Decatur	"	201	231	217	199	211	206
Cottonseed meal, 41% solvent, Memphis	"	177	214	213	178	187	194
Linseed meal, 34% solvent, Minneapolis	"	145	168	162	141	138	135
Peanut meal, Southeast mills	"	198	239	240	206	207	218
Meat meal, Ill. prod. pts.	"	219	229	232	207	223	209
Fishmeal, 65% protein, East Coast	"	362	407	393	374	384	381
Gluten feed, Chicago	"	118	136	135	119	111	114
Gluten meal, 60% protein, Chicago	"	251	275	284	259	245	256
Brewers' dried grains, Milwaukee	"	106	136	141	136	124	106
Distillers' dried grain, Lawrenceburg, Ky.	"	145	190	190	185	174	166
Feather meal, Arkansas Pts.	"	239	305	305	273	282	243
Wheat bran, Kansas City	"	88	117	116	80	93	91
Wheat middlings, Kansas City	"	88	117	116	80	93	91
Rice bran, f.o.b. mills, Arkansas	"	70	120	123	64	80	79
Hominy feed, Ill. pts.	"	97	118	114	106	108	110
Alfalfa meal, dehy., Kansas City	"	121	134	140	144	141	142
Cane molasses, New Orleans	"	49	73	73	73	73	73
Molasses beet pulp, Los Angeles	"	122	---	---	---	---	131
Animal fat, Ill. prod. pts.	c/lb.	13.1	15.8	17.1	17.0	17.9	17.6
Urea, 42% N., Fort Worth	\$/ton	213	225	225	225	225	225
Corn, No. 2 white, Kansas City	\$/bu.	3.35	4.72	4.60	4.72	4.85	4.85
<b>PRICES PAID, U.S. BASIS 3/</b>							
Soybean meal, 44%	\$/cwt.	13.58	15.60	15.60	14.80	14.50	14.50
Cottonseed meal, 41%	"	13.79	16.00	16.30	16.00	15.90	16.00
Wheat bran	"	9.80	10.60	10.70	10.80	10.60	10.50
Wheat middlings	"	9.40	10.10	10.30	10.30	10.20	10.10
Broiler grower feed	\$/ton	213	240	243	243	242	246
Laying feed	"	195	219	219	217	214	214
Turkey grower feed	"	237	262	257	256	252	258
Chick starter	"	218	244	246	243	239	241
Dairy feed, 16%	"	180	205	205	201	199	199
Beef cattle concentrate, 32-36% protein	\$/cwt.	11.87	13.40	13.90	13.40	13.40	13.10
Hog concentrate, 38-42% protein	"	15.18	16.80	16.80	16.10	16.00	15.90
Stock salt	"	6.17	6.25	6.41	6.52	6.54	6.56
<b>CORN PRODUCTS, WHOLESALE 4/</b>							
Corn meal, New York							
White	\$/cwt.	14.76	20.06	20.44	20.52	21.39	21.55
Yellow	"	12.73	13.63	13.50	13.57	14.28	14.69
Grits (brewers'), Chicago	"	9.84	10.83	10.55	10.62	11.33	11.72
Syrup, Chicago West	c/lb.	12.73	13.13	13.13	13.13	12.69	13.08
Sugar (dextrose), Chicago West	"	24.23	24.25	24.25	24.25	24.15	24.00
High-fructose (dried weight in tank cars), Chicago West	"	15.65	20.92	20.00	17.61	18.81	19.37
Corn starch, f.o.b. Midwest	\$/cwt.	10.71	12.90	12.69	10.81	13.26	13.98

1/ Preliminary. 2/ Grain and Feed Market News, AMS, USDA, except urea which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota. 3/ Agricultural Prices, ERS, USDA. 4/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources.

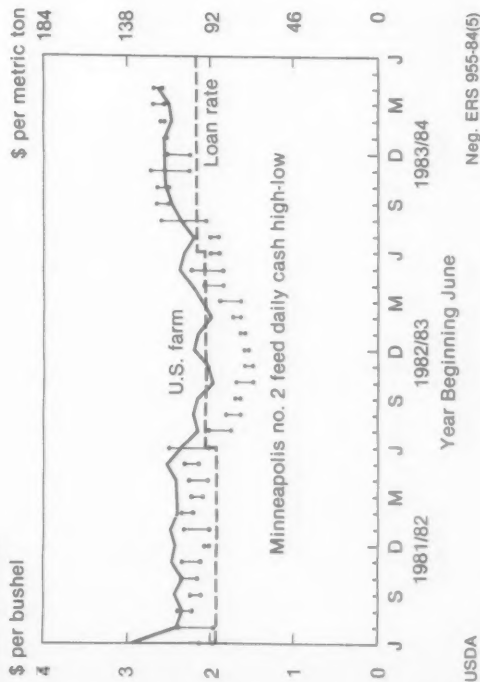
# Corn Prices



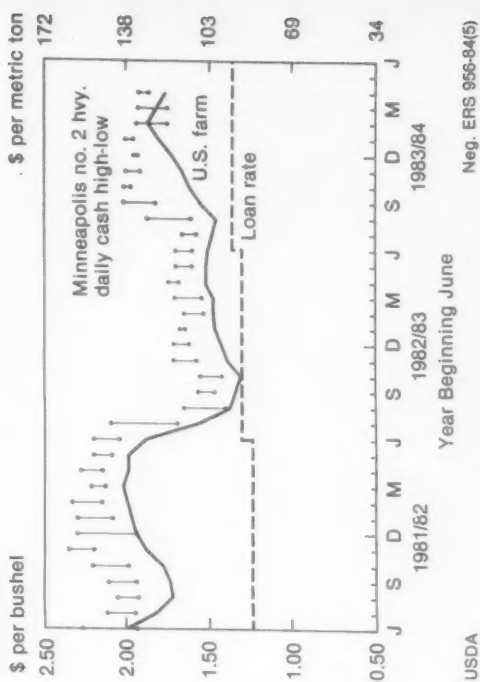
# Sorghum Prices



# Barley Prices



# Oat Prices



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